

USER MANUAL

Electronic motorized cylinder



MZT 35i

MCU MI

E.ZU.WL.NT.V1

EMZY - motorized knob

EMZY - micro control unit

EMZY - power supply

Mounting instruction

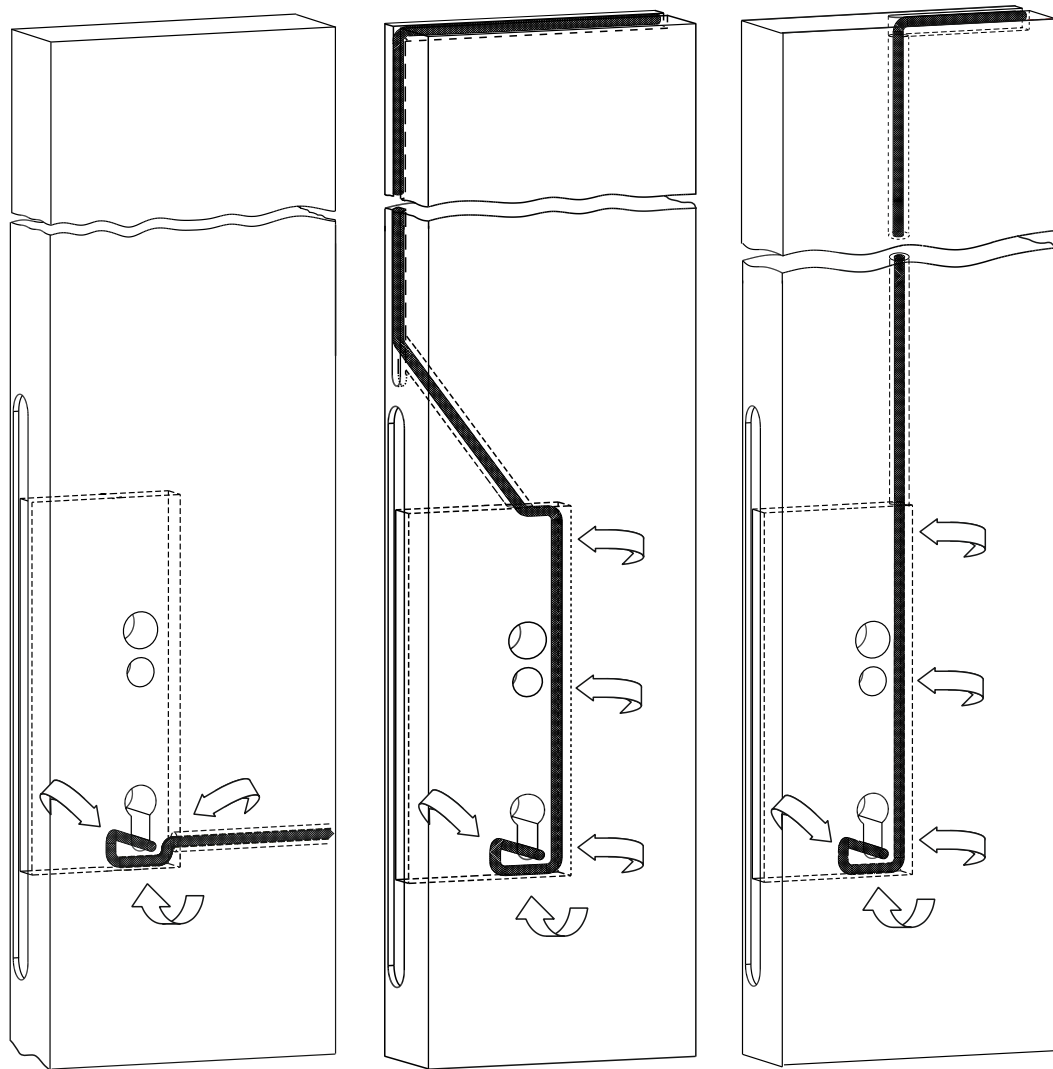
Content

1. Cable routing	Page	2
2. Cable transition	Page	4
3. Motor connection cable EVKA	Page	5
4. Door contact	Page	6
5. Bolt contact	Page	7
6. Operation mode switch	Page	8
7. Door push button	Page	8
8. Electric strike	Page	9
9. Knob mounting MZT 35i	Page	10
10. Control unit MCU MI	Page	12
11. Power supply E.ZU.WL.NT.V1	Page	13
12. Connection examples	Page	14
13. Technical specifications	Page	25

Startup instruction

Content

14. Interactive Learn	Page	27
15. Intelligent push button	Page	31
16. Parameterizing	Page	32
17. Troubleshooting	Page	35



Drawing 1

Drawing 2

Drawing 3

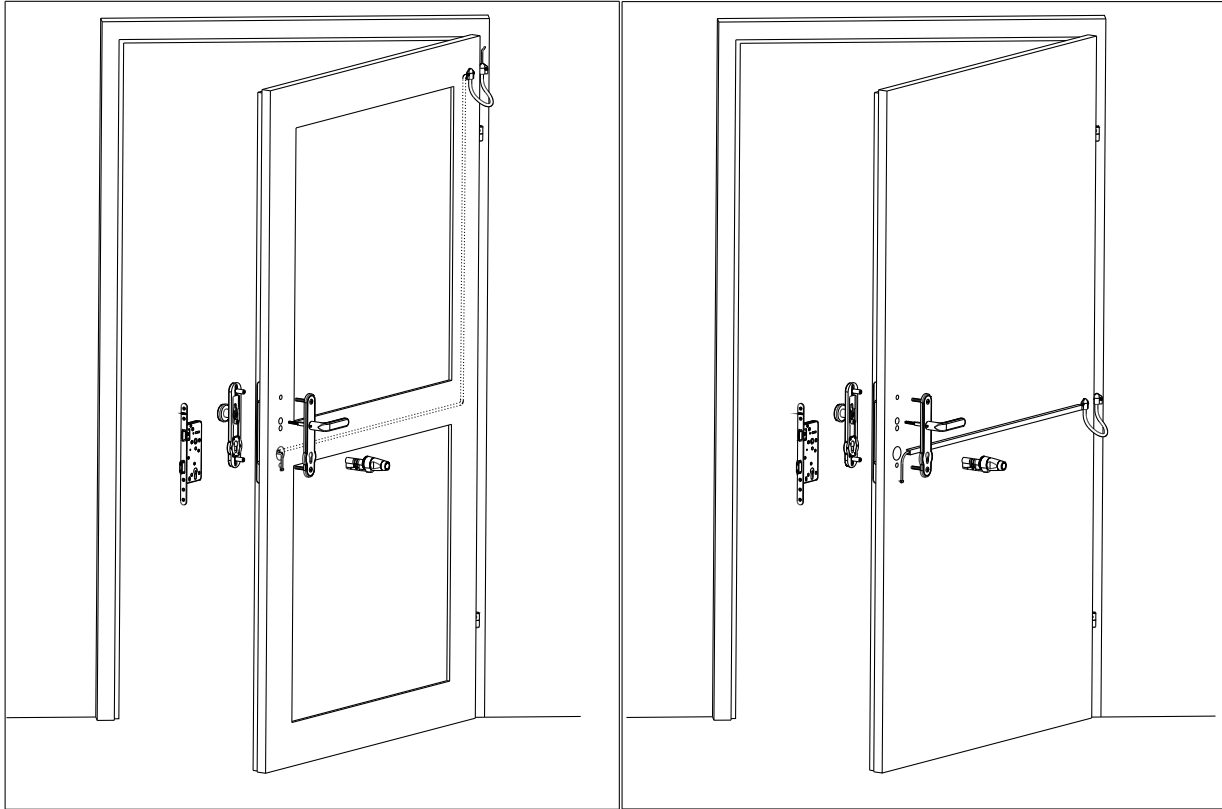
1. Cable routing

1.1 Cable routing in a wooden door

There are different ways of routing the motor connection cable. One possible way is described in the drawings 1 - 3.

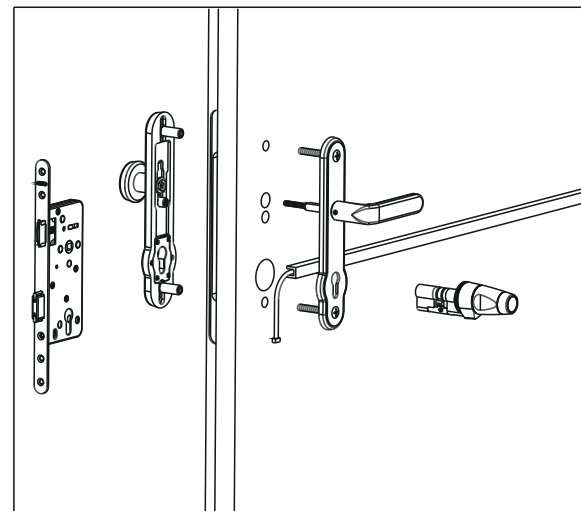
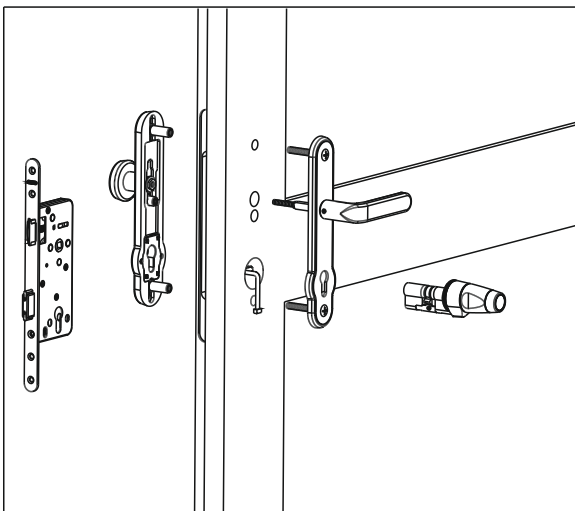
The mortise must be enlarged in the designated areas to lead the cable to the outlet.

Edges and bottleneck must be carefully avoided to prevent damage and contusion. The drilling diameter for the cable routing should have 10 mm.



Drawing 4
Tubular frame door

Drawing 5
Steel door



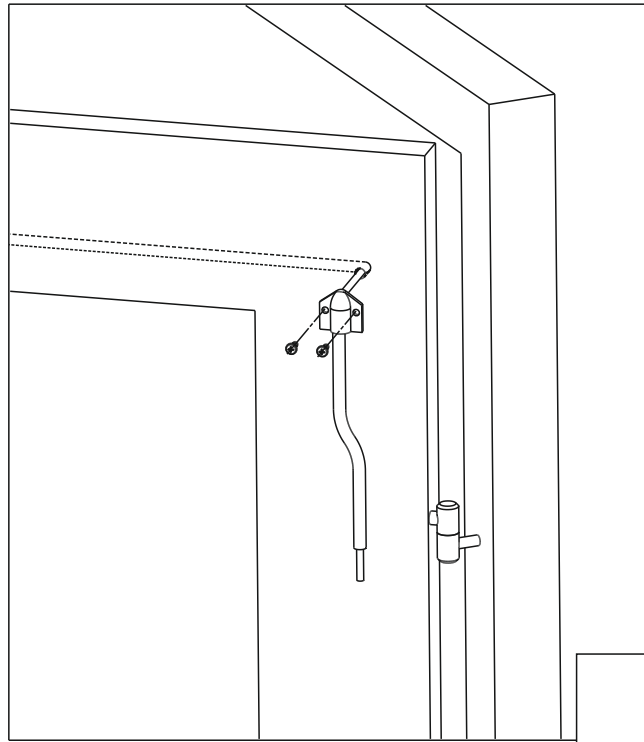
1.2 Cable routing in tubular frame and steel doors

With these types of doors there are so many ways of routing the cables, that only a few solutions can be offered here.

To maintain the original function of the door, it is necessary to communicate with the door producer, the fire brigade, etc.

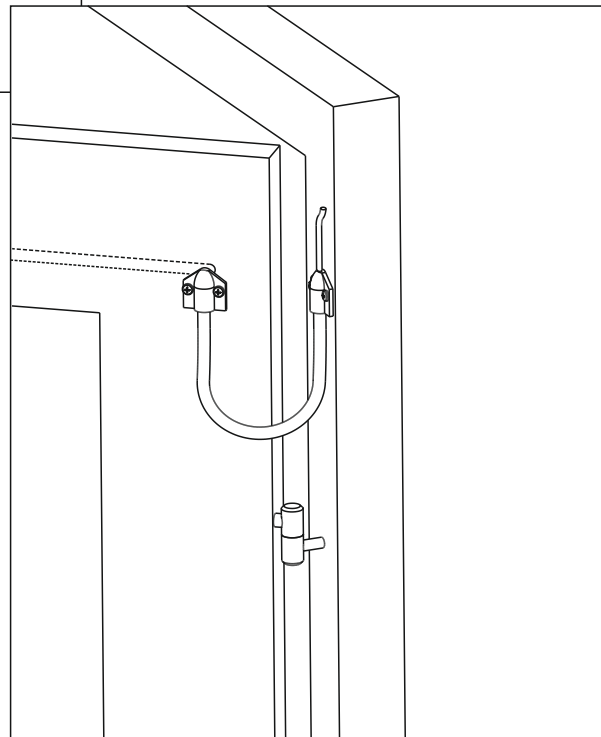
Drawing 4 shows a solution for tubular frame doors.

Drawing 5 shows the cable routing on the door, easy to realise and suited for fire resistant doors, where a later cable routing in the door is forbidden.



Drawing 6

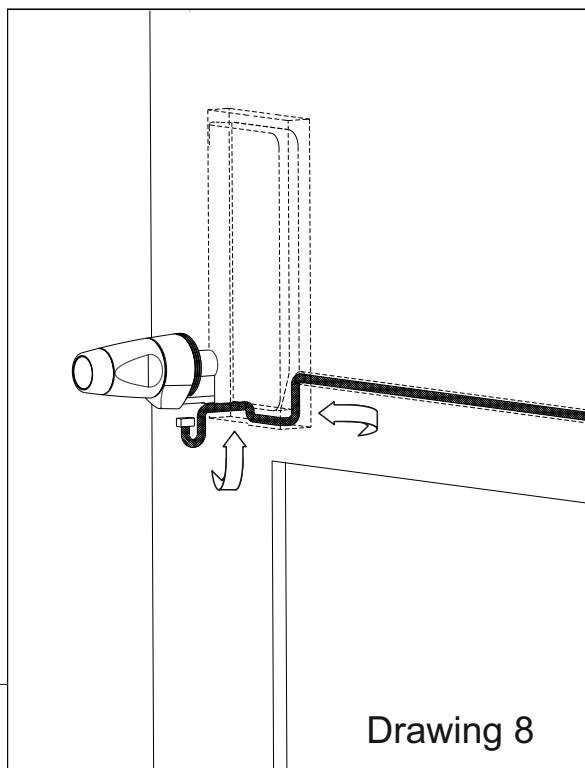
Drawing 7



2. Open cable transition OEM-EAKO

The open cable transition must be mounted in a way, that there is no tension on the tube, when the door is completely opened.

Therefore the cable must be free movable on one side to follow the door's movements, otherwise there is a risk of cable break!



Drawing 8

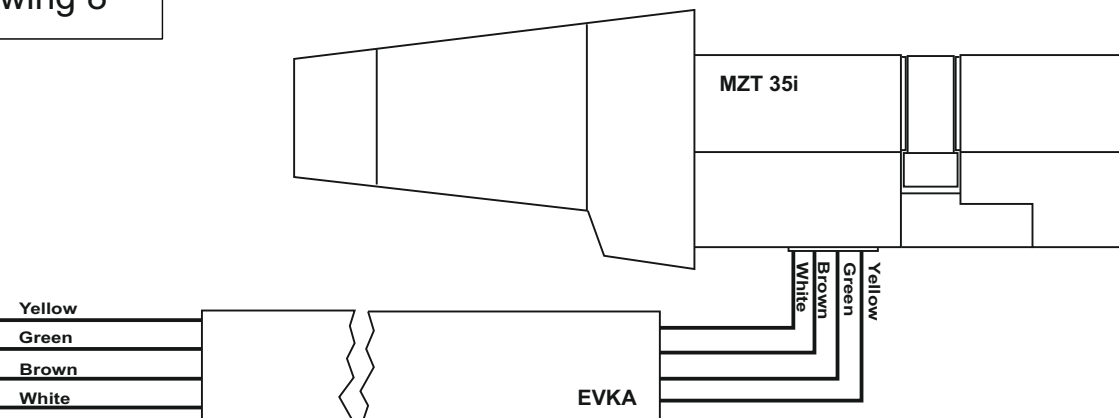
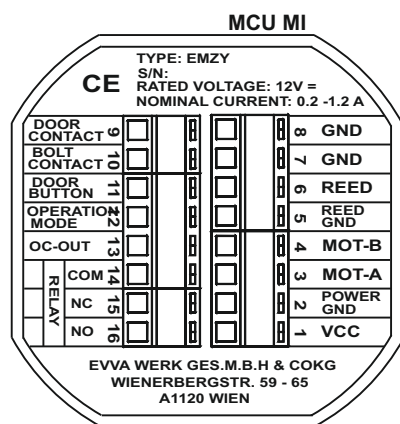
3. Motor connecting cable EVKA

The EMZY motor connecting cable 10 m EVKA connects a motorized knob unit to the EMZY micro control unit MCU MI.

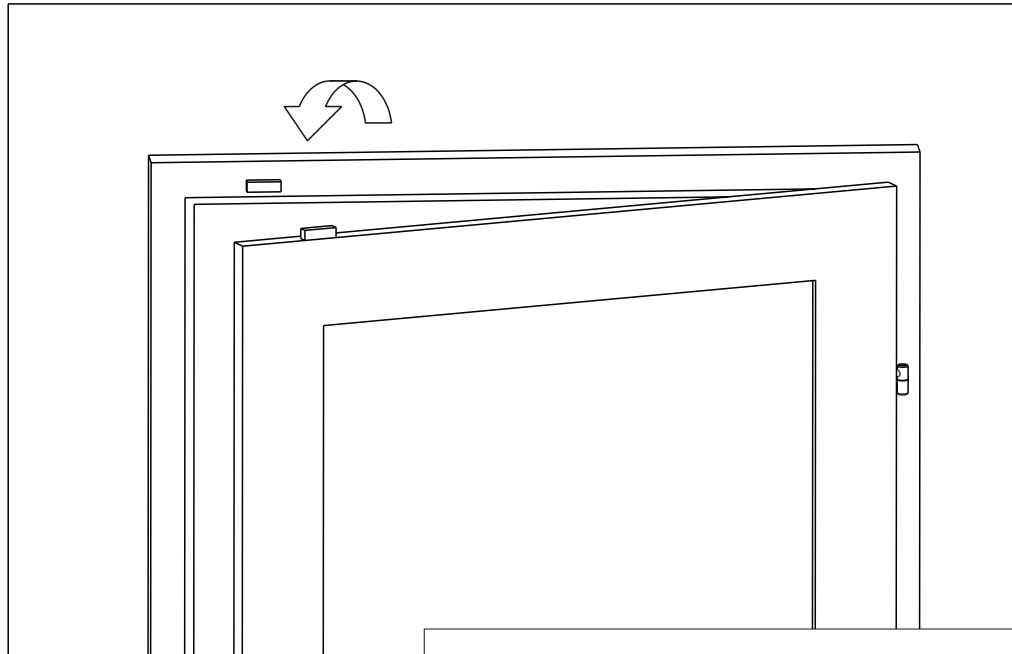
At all time the lay of cable should be without squeeze.

Especially in the mortise area enough room for the cable is absolutely necessary.

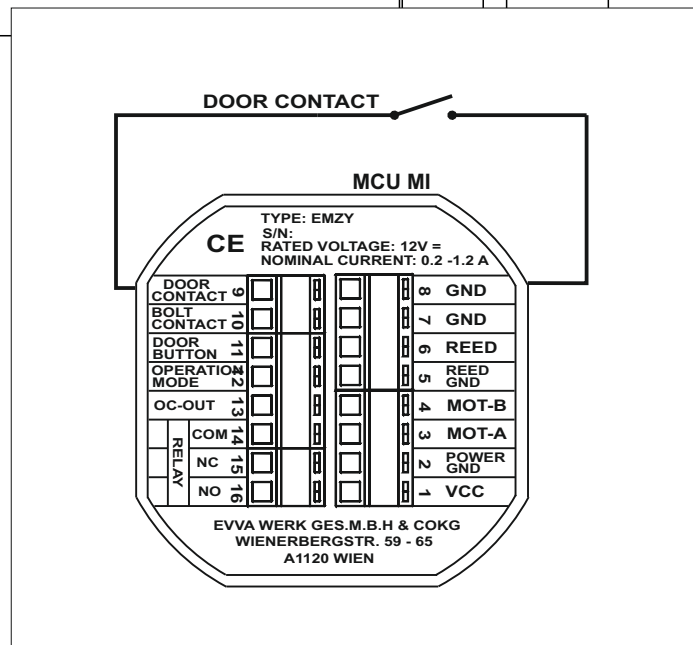
See drawing 8.



Drawing 9



Drawing 10



Drawing 11

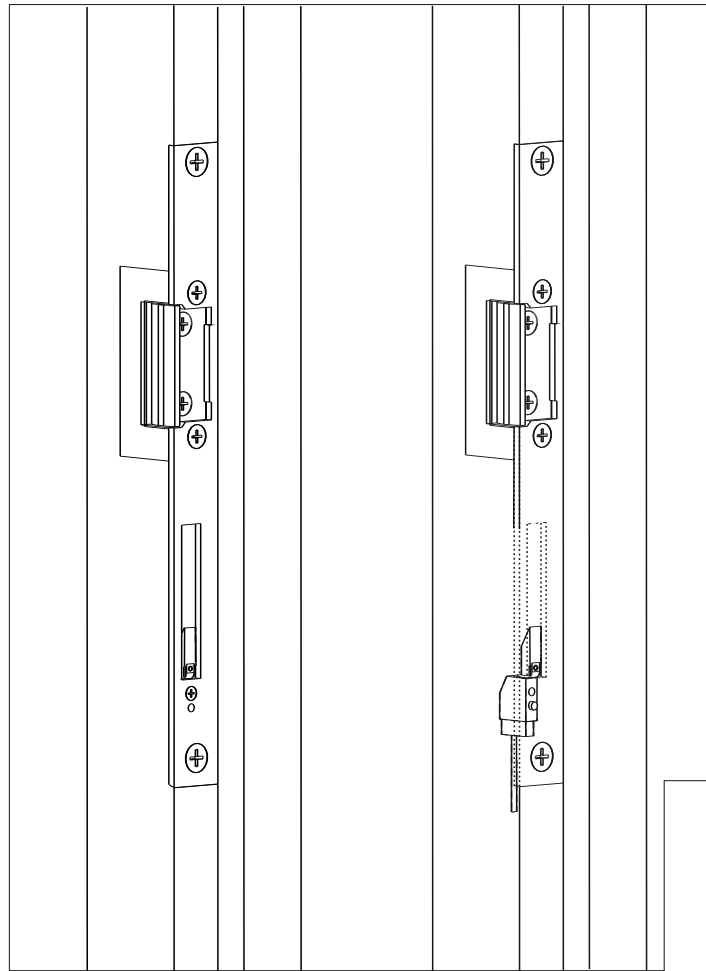
4. Door contact

By this input the control unit recognises if the door is locked.

(static = switch feature)
Contact closed = door closed

During the installation it has to be paid attention, that an already very small opening of the door is registered.

The door contact has to be mounted at the opposite side of the door hinge on the upper part of the door leaf. See drawing 10. It is of great importance for the detection of the correct door status.



Drawing 12

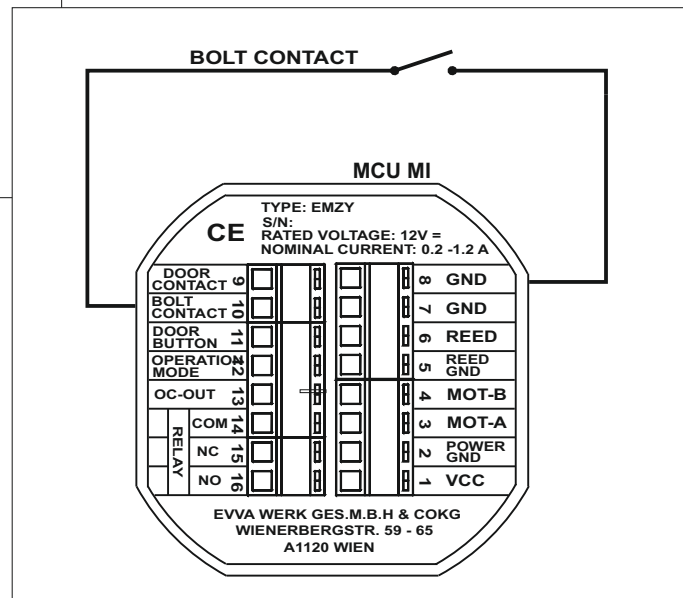
5. Bolt contact

With this input the control unit recognises the activation of bolt contact mounted in the striking plate (with completely engaged bolt).

(static = Switch function)

Bolt completely engaged = Bolt contact shut

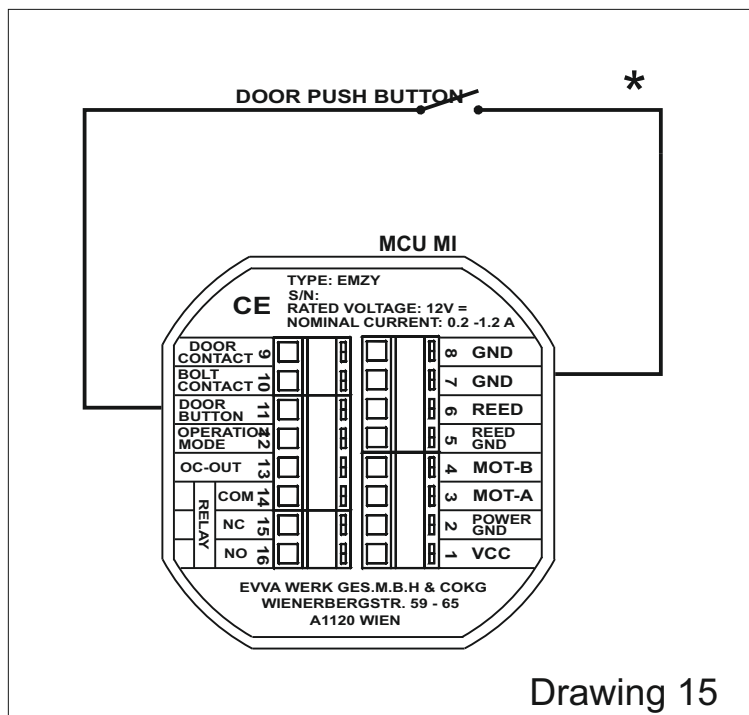
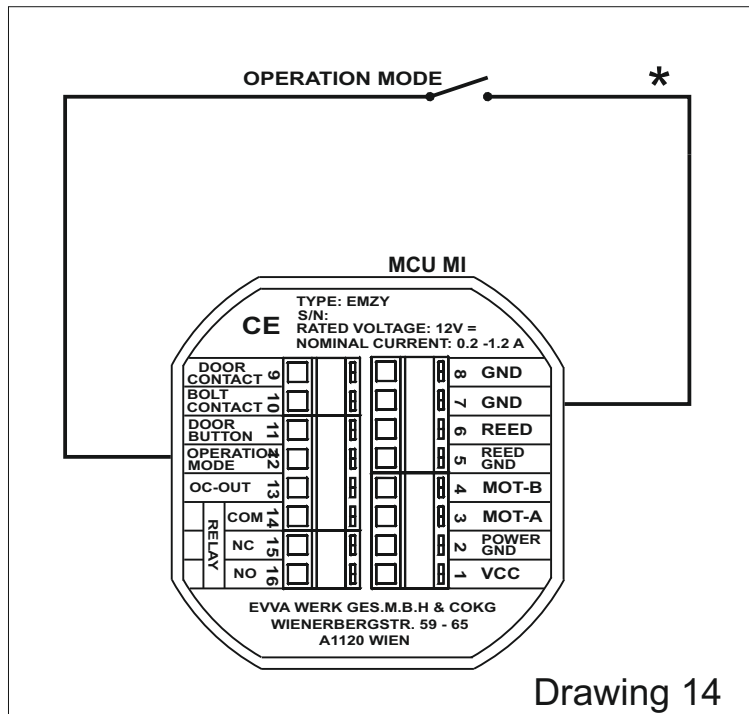
This bolt contact is not necessary by default and is only used for locks with emergency function.



Drawing 13

The bolt contact should be adjusted such as it is activated during the last revolution of the bolt before it is completely engaged!

The detailed mounting instruction is to be found in the description of the bolt contact.



6. Operation mode switch

By this input the control unit recognises after the unlocking (bolt retracted), if after the closing the door should be locked again or not (day/night setting).

(Static = Switch function)

Contact locked = **Day mode**

(The door stays unbolted despite the closed door contact)

Contact open = **Night mode**

(The door is always bolted)

Attention!

When the feature “Intelligent knob push button” is activated, the operation mode state is not relevant. The switching between day and night setting is made with the knob push button. A detailed description of the feature “Intelligent knob push button” is in the chapter “Startup instruction”.

7. Door push button

By this input the control unit recognises if the door shall be unbolted.

(Impulse = Impulse function)

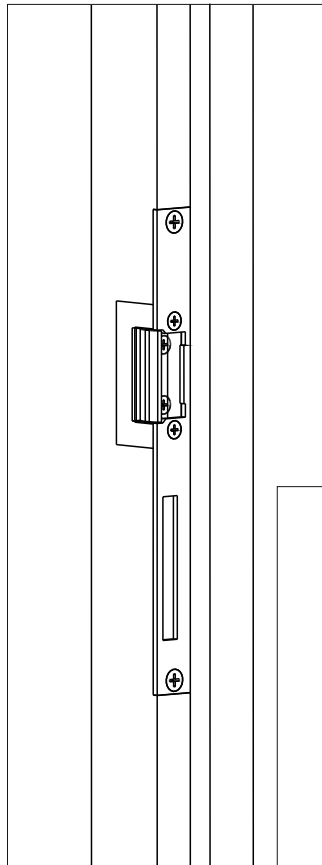
Contact closed = Opening command

* Max. cable length 10 m

8. Electric strike

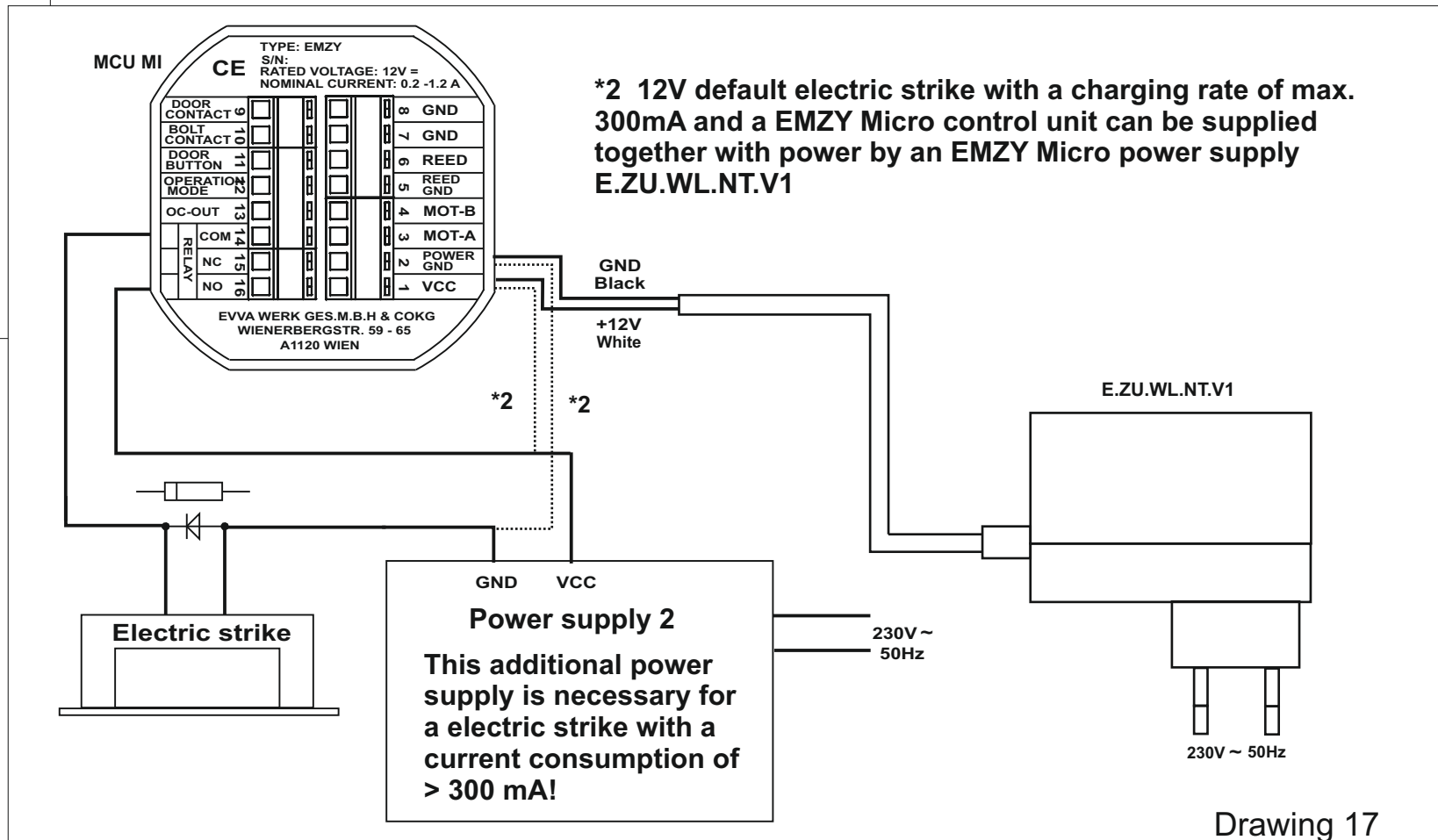
This output is only active, when “No latch retraction mode” is chosen, when the control unit receives the command to unlock and when the motorized cylinder reaches the opened neutral position. The relay is activated to control an electric strike. The activation time is adjustable from 1 - 10 seconds or without limit. (The default time is 3 seconds)

ATTENTION: By means of the PDA-software the logical output signal “Door opener” can be assigned as special feature to one of the hardware outputs. Then the relay operates according to the logic status of the corresponding control input or informs about the correct locking status. A detailed description can be found in the chapter “Startup instruction”.

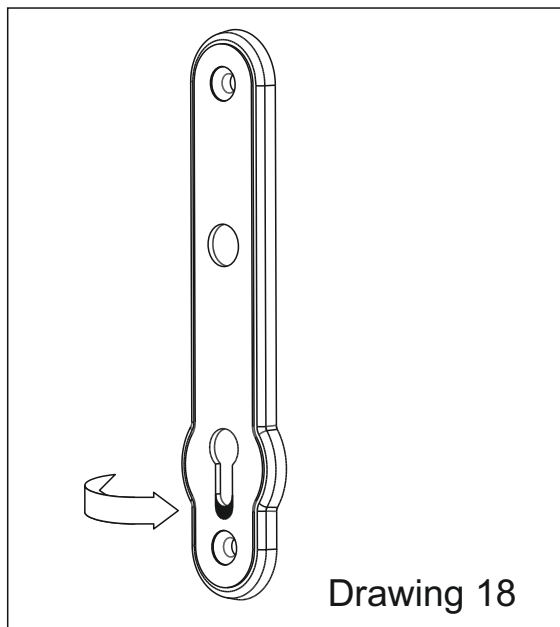


Drawing 16

When choosing the electric strike please take into account the maximum switching capacity of the relay (30V/1A) of EMZY Micro control unit.



Drawing 17



9. Installation of a motor knob unit

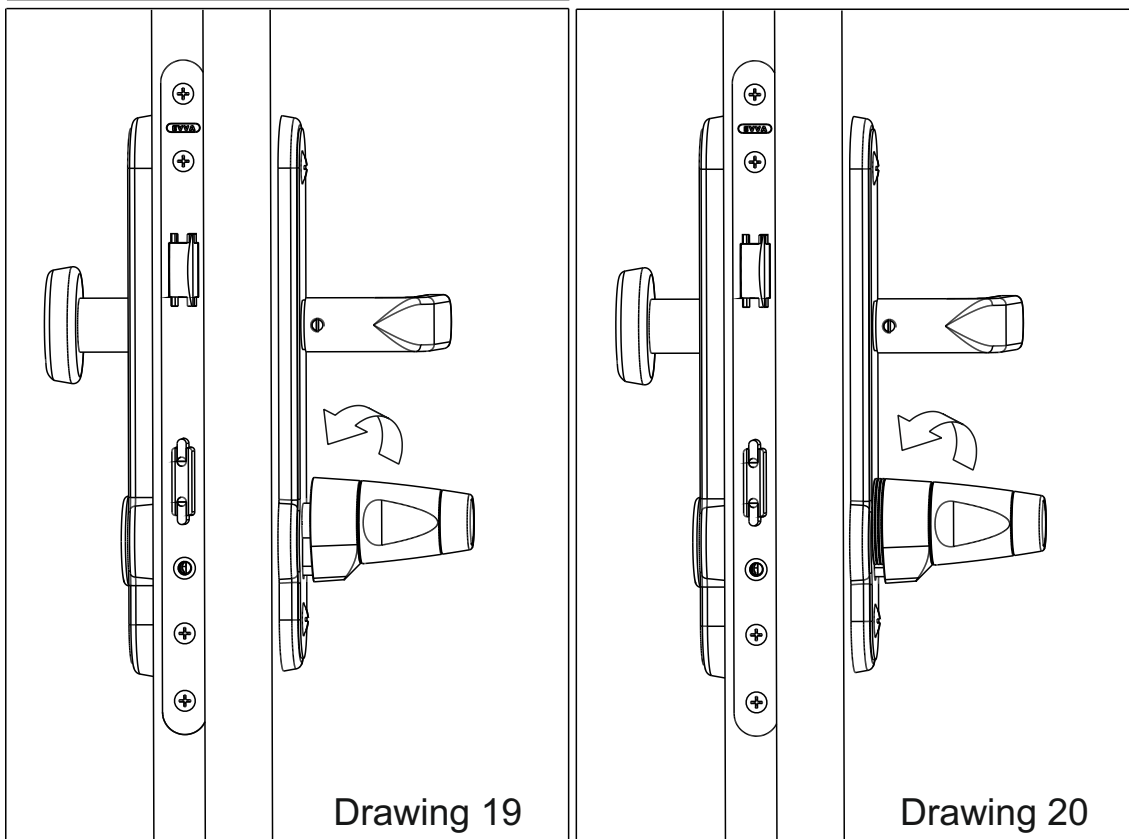
9.1 Escutcheon preparation

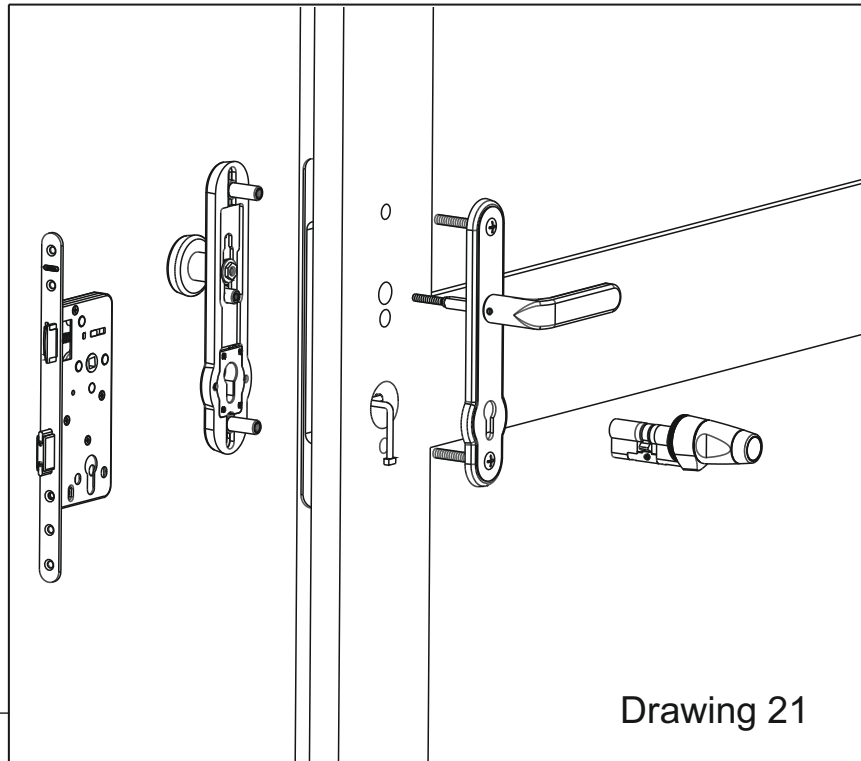
For escutcheons with hidden screws at the inside, the cylinder cut must leave enough room at its lower part for the motor connection cable. (See drawing 18)

9.2 Fitting the motor knob unit into the escutcheon

The gap between the inner plate and the motor knob can be filled with spacers to reach a gapless transition between the motor knob unit and the escutcheon.

Insert the motor knob unit into the mortise lock to find out how many spacers are necessary.





9.3 Mounting of the motor knob unit

9.3.1 Escutcheon with visible screwing

Insert the motor knob unit into the inner plate of the escutcheon.

Connect the motor connexion cable EVKA to the motor knob unit.

Insert very carefully the motor knob unit in the mortise lock.

(Attention to the lay of the cable !!!)

Fix the motor knob unit and the escutcheon.

9.3.2 Escutcheons without visible screwing

Fix the escutcheon

Insert the motor knob unit to the half into the mortise lock

Connect the motor connexion cable to the motor knob unit

Insert very carefully the motor knob EVKA unit completely into the mortise lock.

(Attention to the lay of the cable !!!)

Fix the motor knob unit.

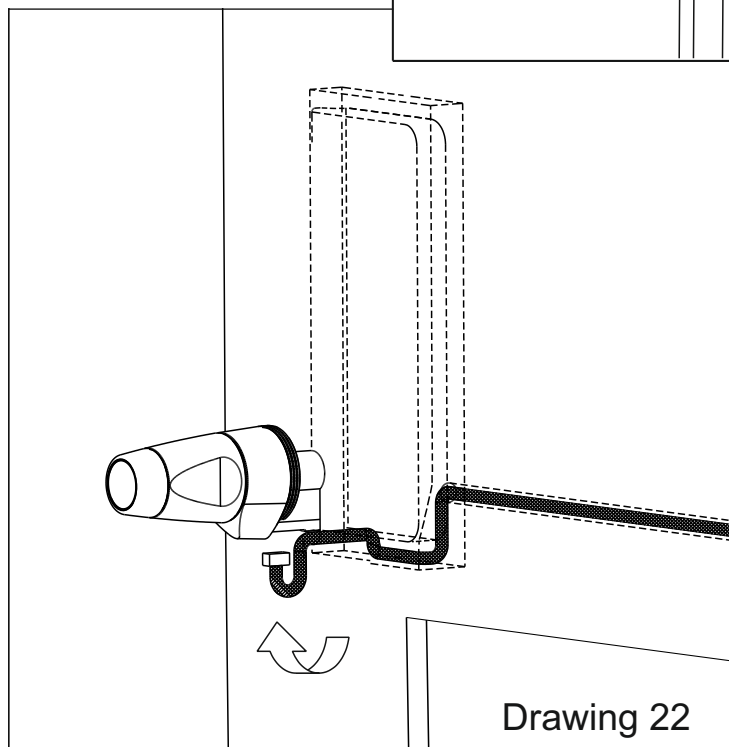
The connector cable has a reverse polarity protection and is therefore protected against wrong poling. (see drawing 22).

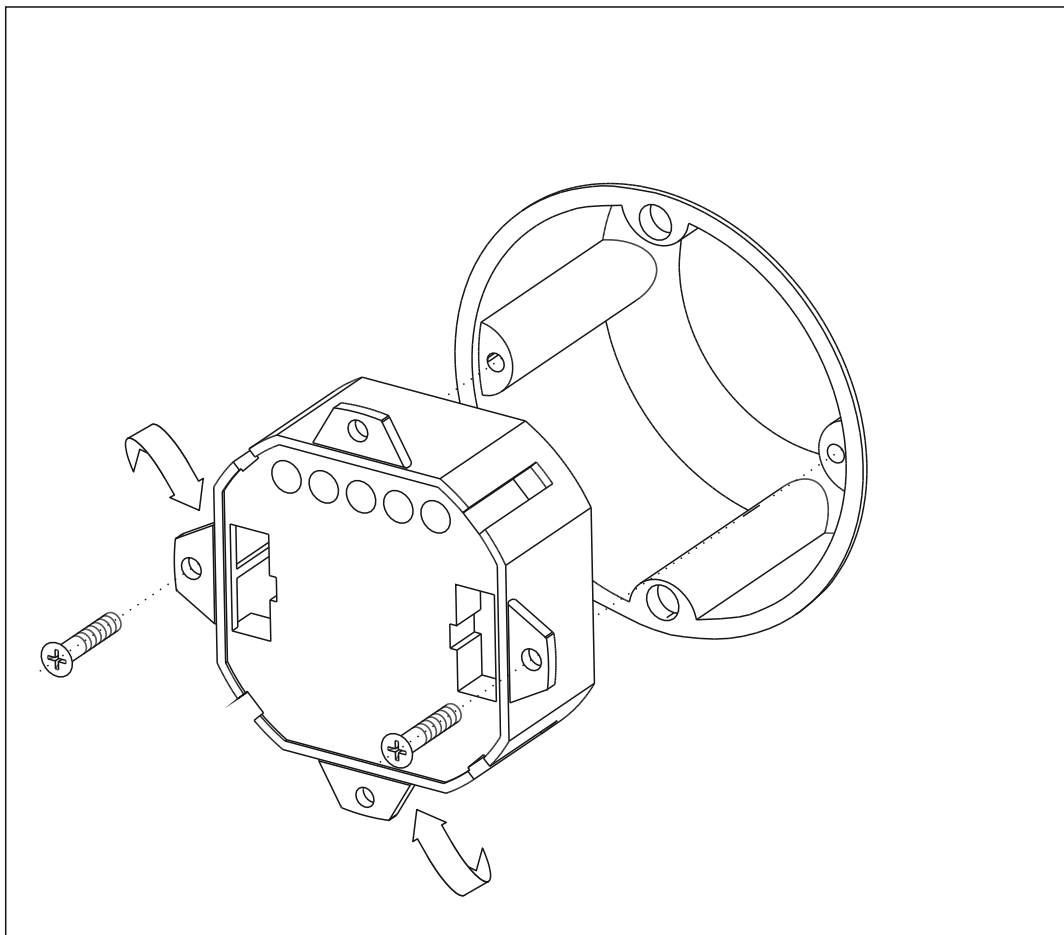
Attention:

The mortise lock must be smooth running and therefore the movable parts must be greased.

For a successful learning process the EMZY should be turn a minimum angular degree of 45° over is his Zero-Position (key withdrawal position) in both directions.

Attention: There are mortise locks which don't allow that.





Drawing 23

10. Installation of the control unit MCU MI

The control unit MCU MI of the motorized cylinder can be mounted in standard flush boxes with a minimum diameter of 60 mm.

The flush box can be covered with a normal blind cover. (Blind covers are available from several different producers)

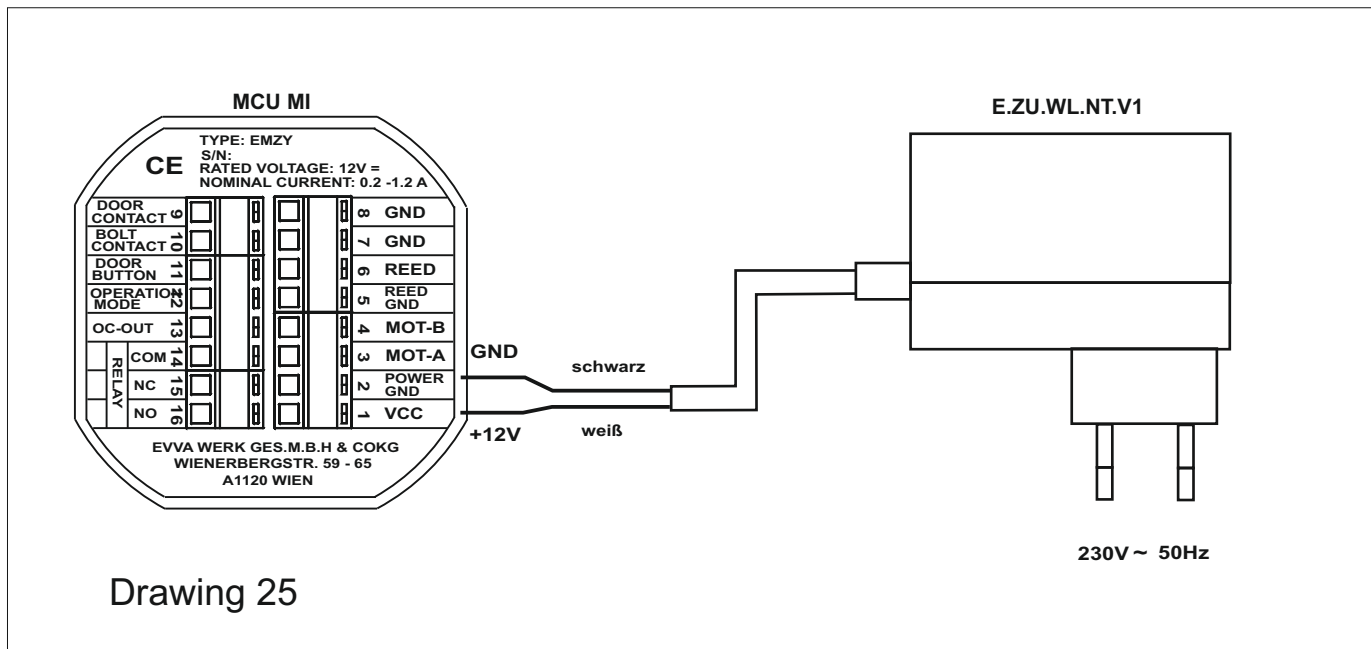
If the flush box is closed with a standard cover, it might be necessary to break-off fixing clips of the control unit. (See drawing 23)

The necessary electric connections for the control unit are explained in the chapters 3-8 and 12 of this manual.

The box is designed for an indoor installation only. Should the control unit be mounted outdoor, a special cover box will be necessary.

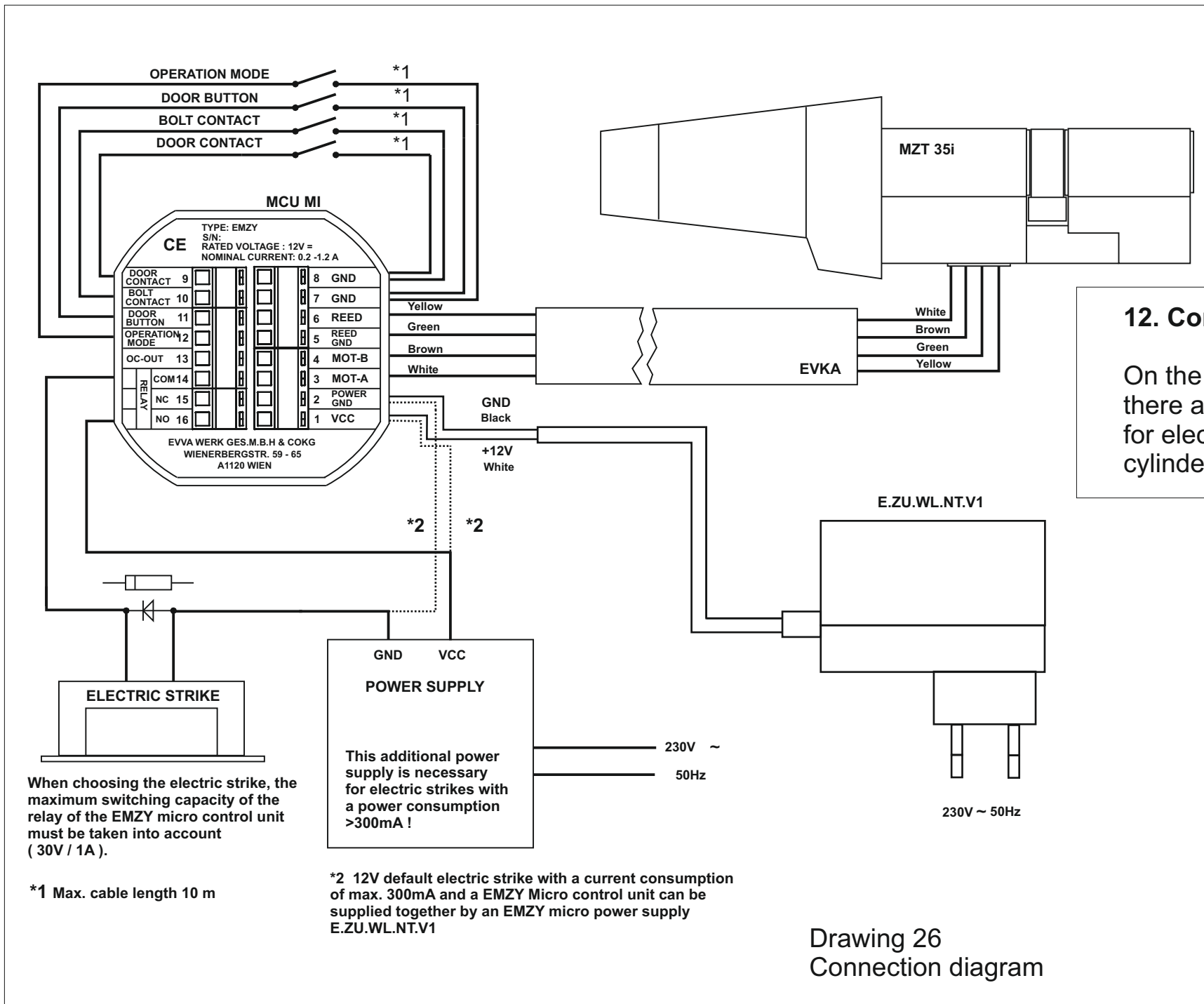
11. Installation of the power supply

The power supply for the control unit of the motorized cylinder may be connected to a standard plug socket.



Drawing 25

The installation of the power supply shall be made by trained personal only!



12. Connection example

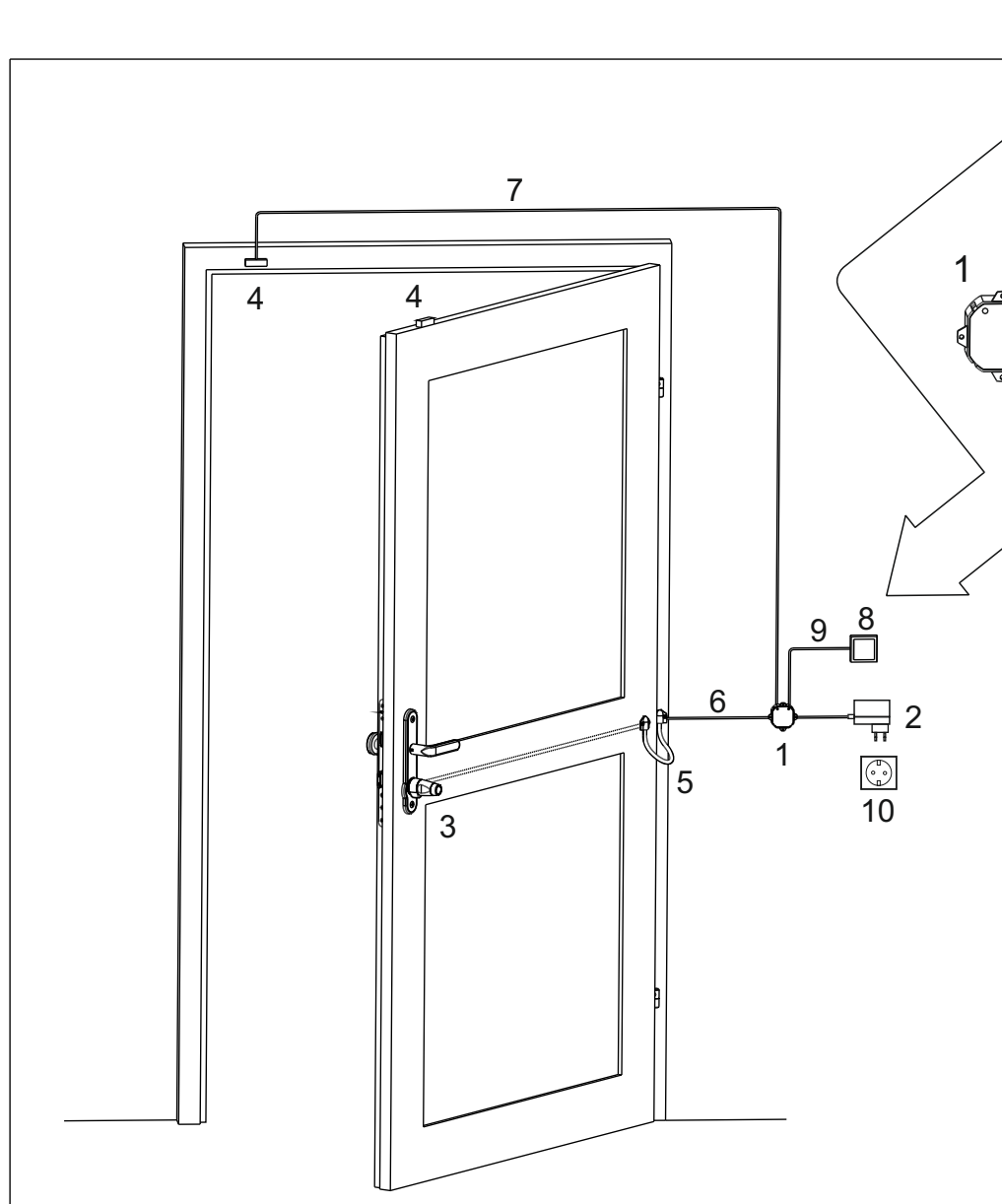
On the following pages there are a few examples for electronic motorised cylinder applications..

When choosing the electric strike, the maximum switching capacity of the relay of the EMZY micro control unit must be taken into account (30V / 1A).

*1 Max. cable length 10 m

*2 12V default electric strike with a current consumption of max. 300mA and a EMZY Micro control unit can be supplied together by an EMZY micro power supply E.ZU.WL.NT.V1

Drawing 26
 Connection diagram



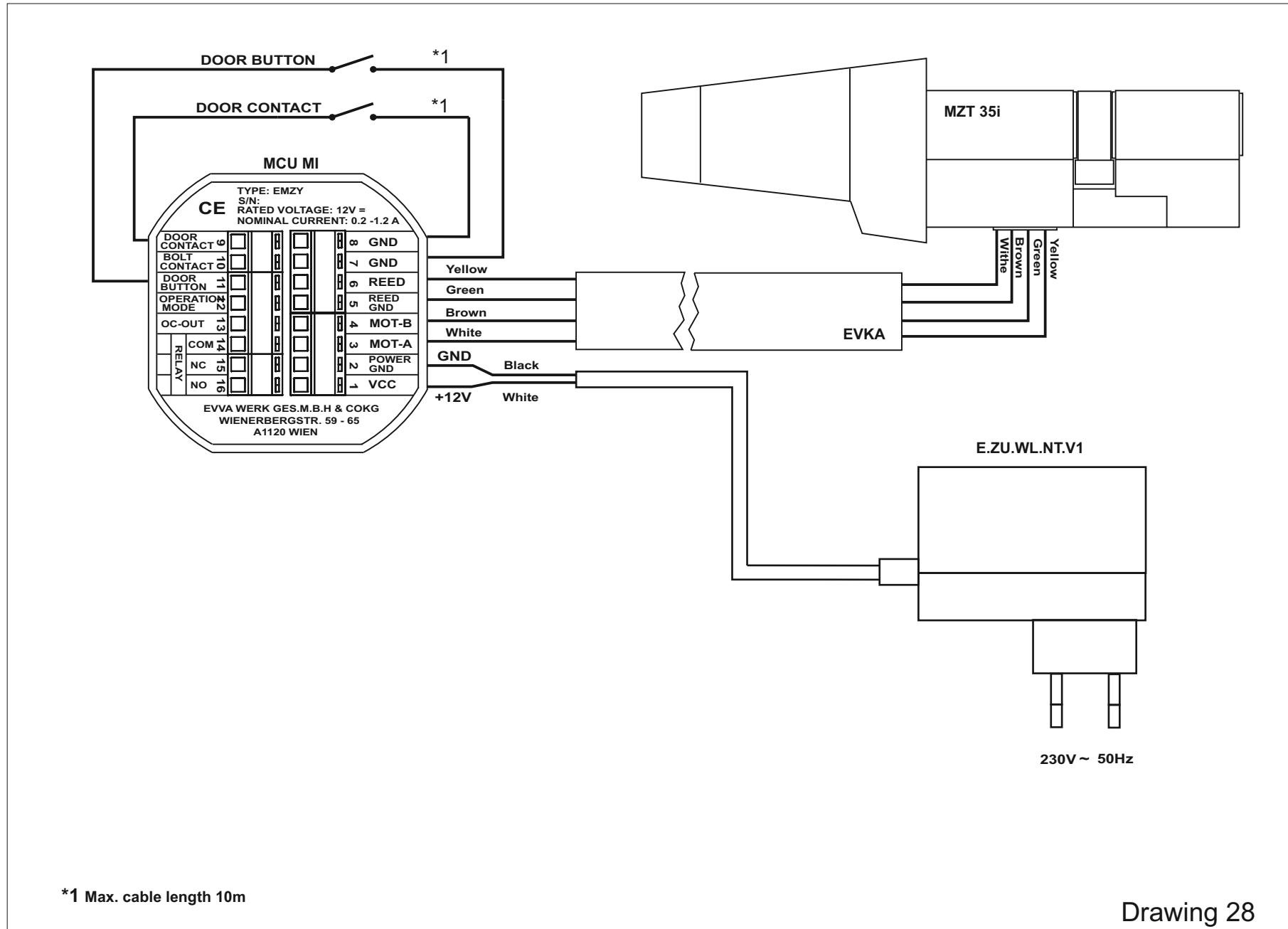
Example 1

12.1 Single leaf door

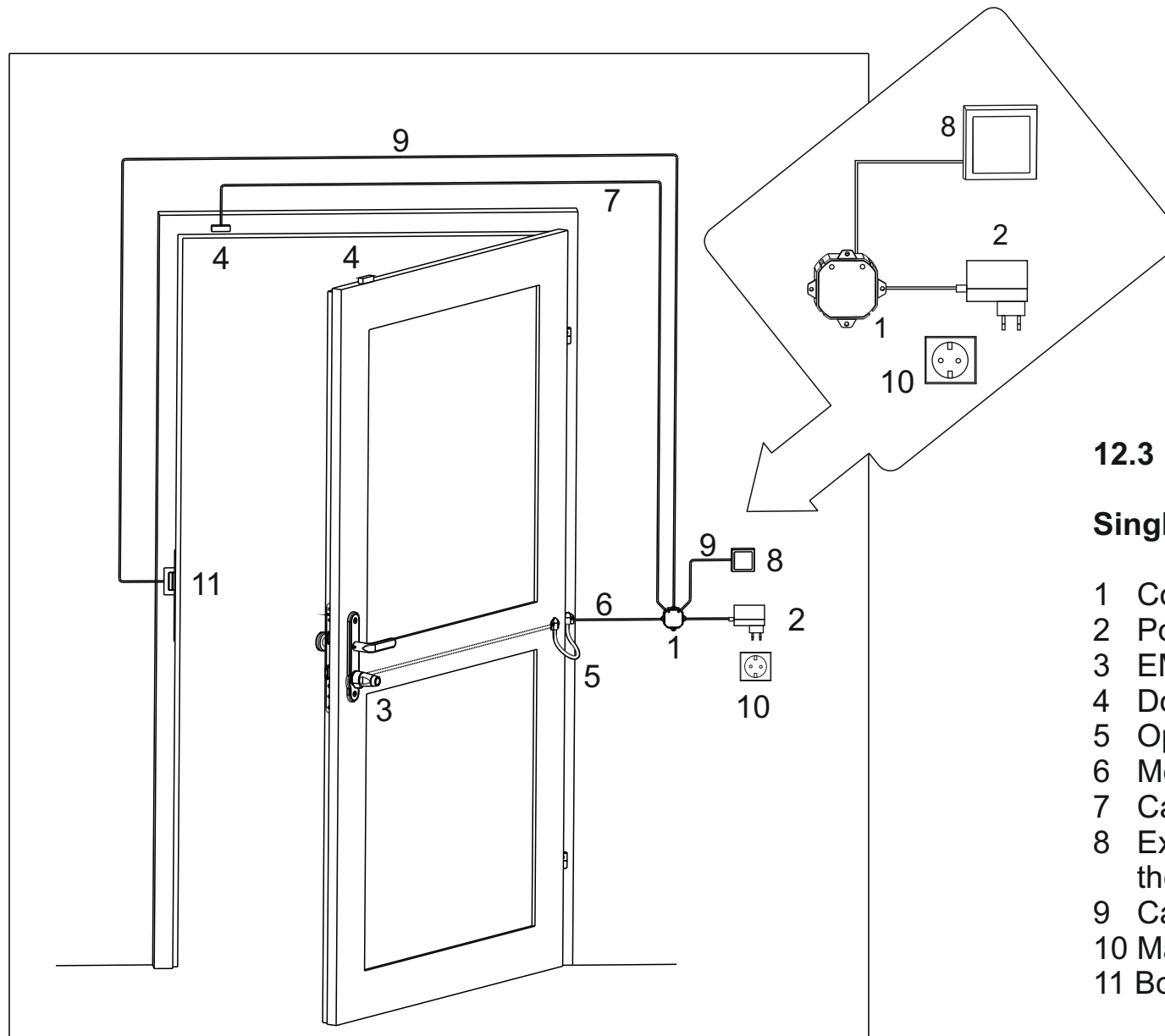
- 1 Control unit MCU MI
- 2 Power supply E.ZU.WL.NT.V1
- 3 EMZY motor knob unit MZT 35i
- 4 Door contact + magnet
- 5 Open cable transition
- 6 Motor connection cable EVKA 10 m
- 7 Cable 4*0,6 flexible, shielded
- 8 External door push button (optional on the inside)
- 9 Cable 2*0,6 flexible, shielded
- 10 Mains power supply 230V AC

Drawing 27

12.2 Connection diagram for example 1



Drawing 28



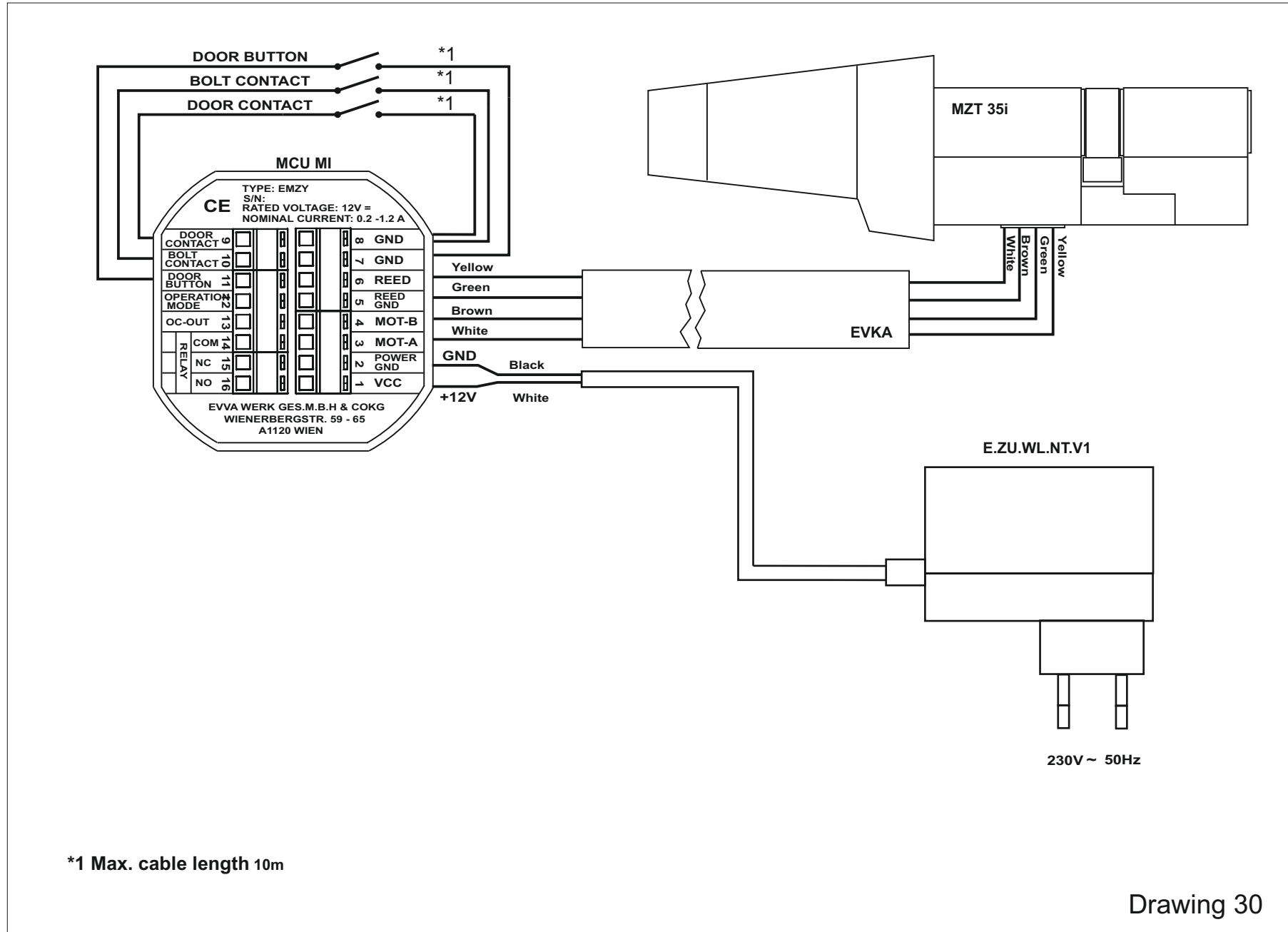
12.3 Example 2

Single leaf door with bolt contact

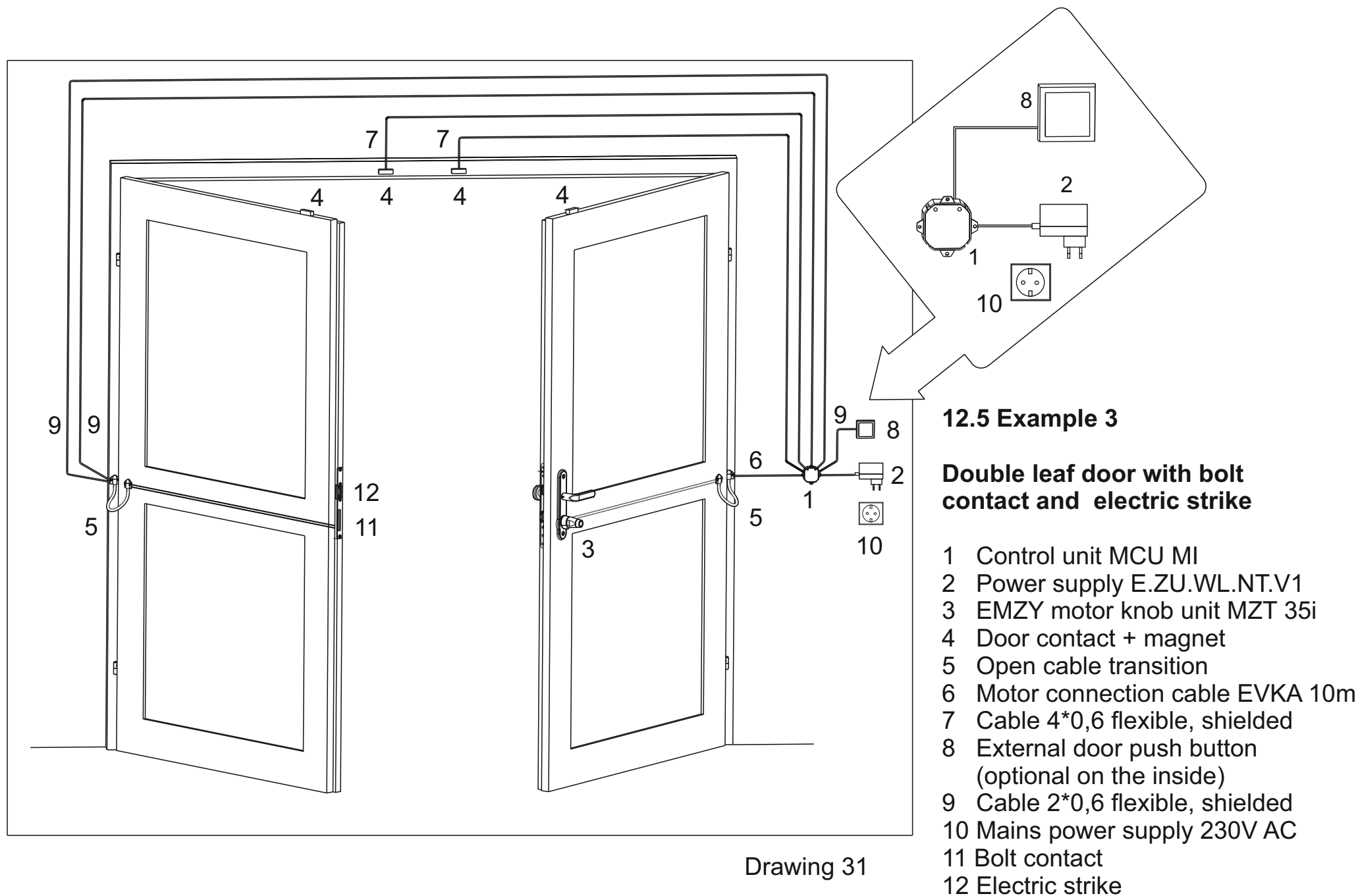
- 1 Control unit MCU MI
- 2 Power supply E.ZU.WL.NT.V1
- 3 EMZY motor knob unit MZT 35i
- 4 Door contact + magnet
- 5 Open cable transition
- 6 Motor connection cable EVKA 10m
- 7 Cable 4*0,6 flexible, shielded
- 8 External door push button (optional on the inside)
- 9 Cable 2*0,6 flexible, shielded
- 10 Mains power supply 230V AC
- 11 Bolt contact

Drawing 29

12.4 Connection diagram for example 2

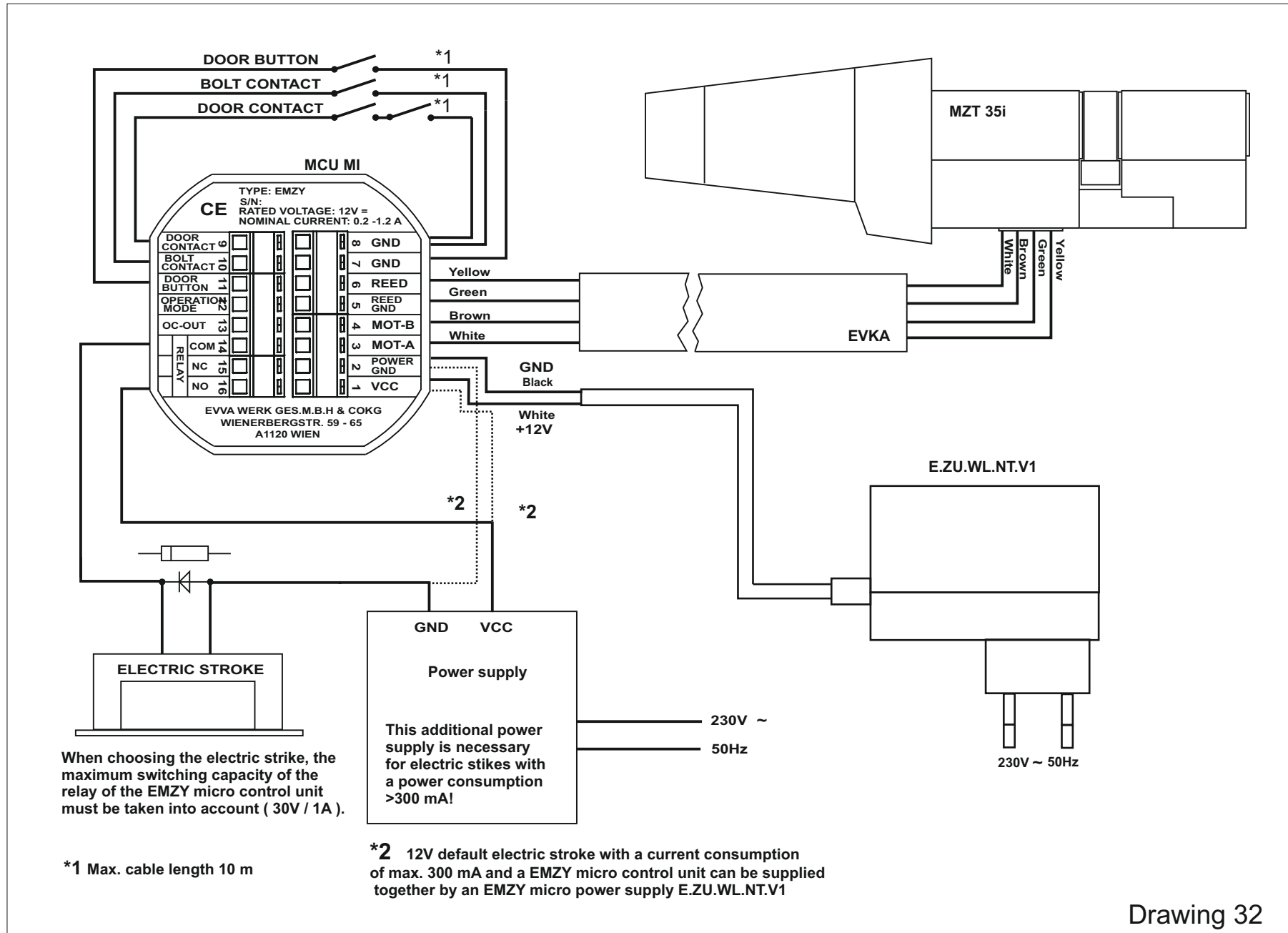


Drawing 30

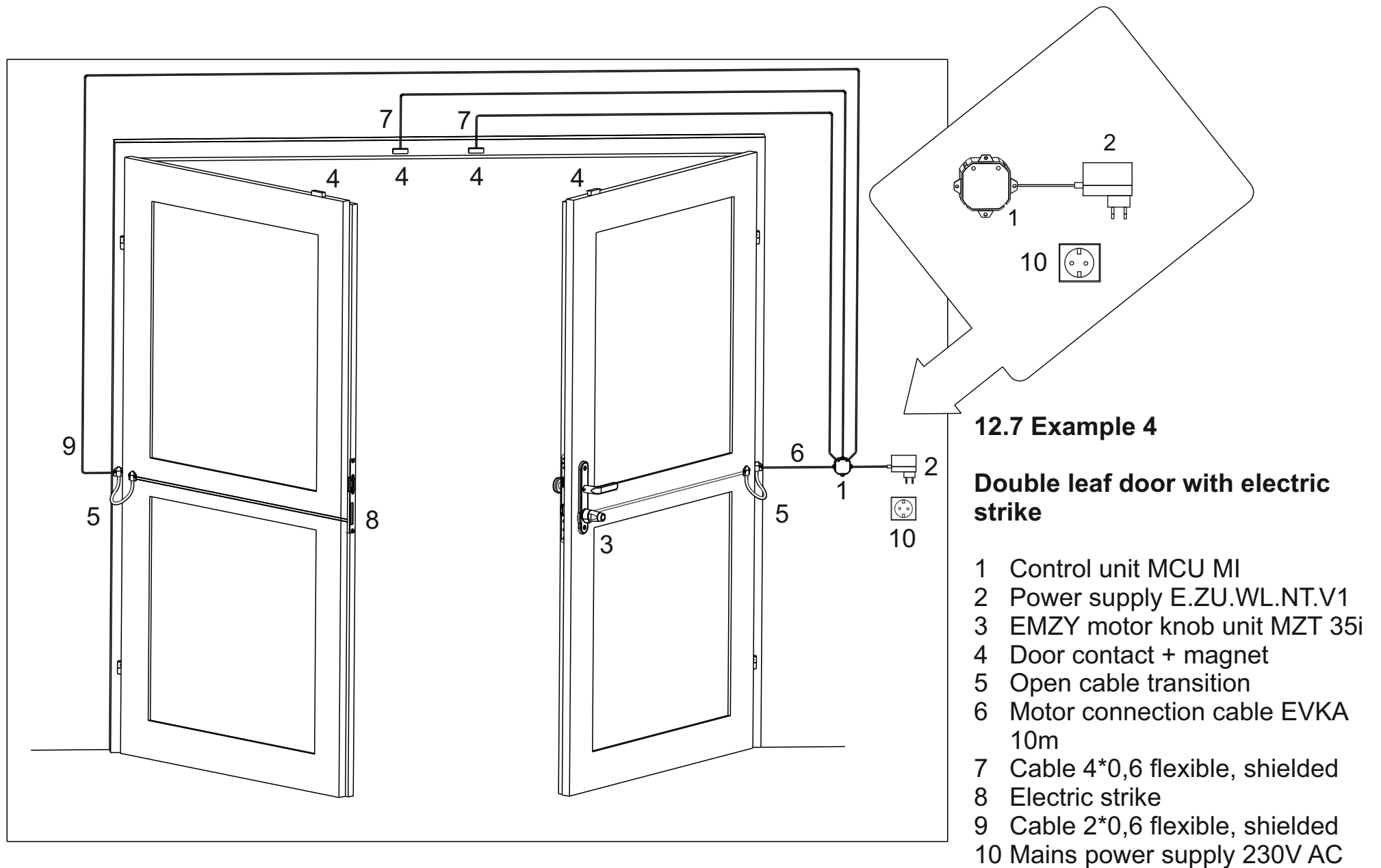


Drawing 31

12.6 Connection diagram for example3



Drawing 32



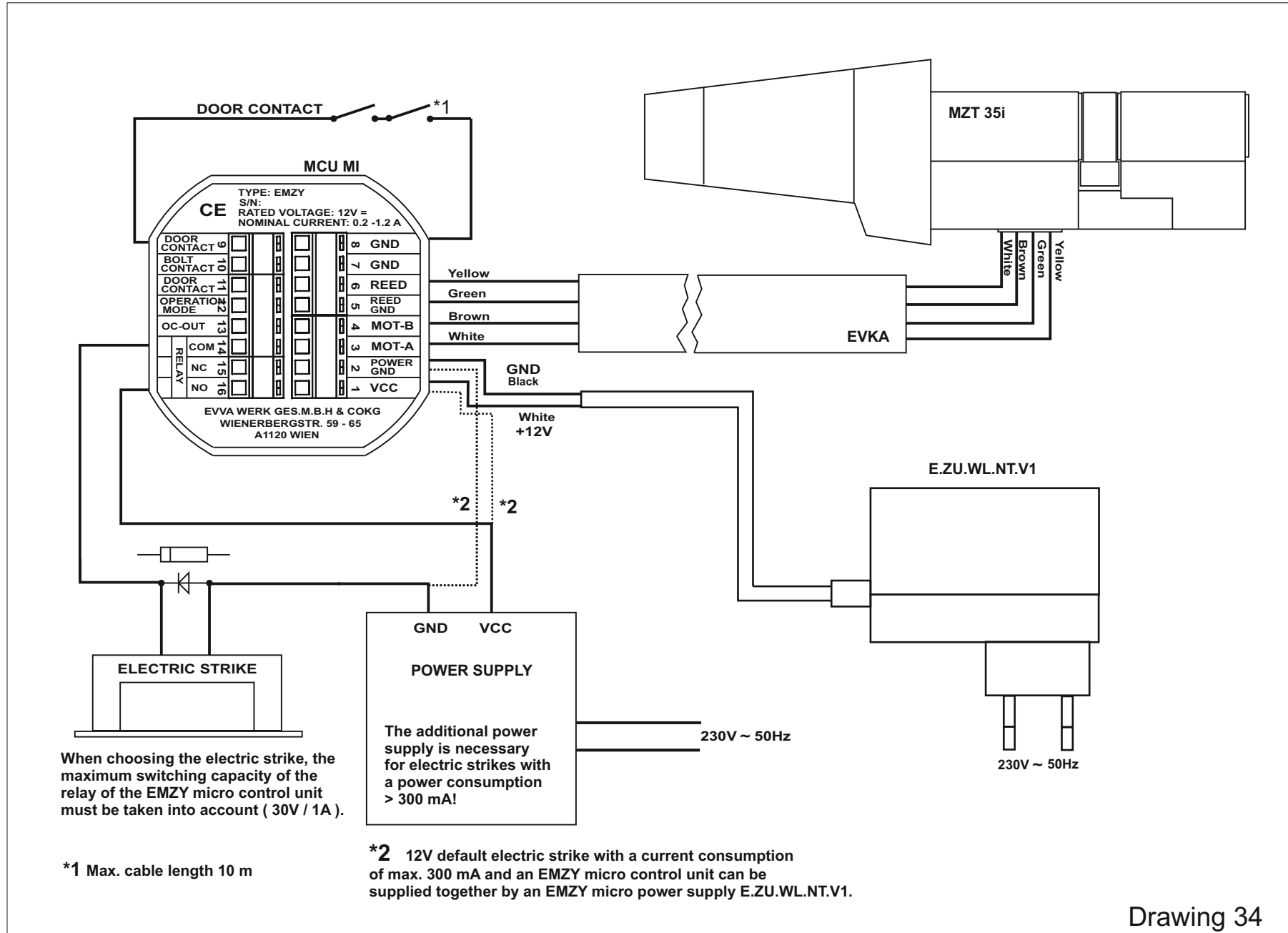
12.7 Example 4

Double leaf door with electric strike

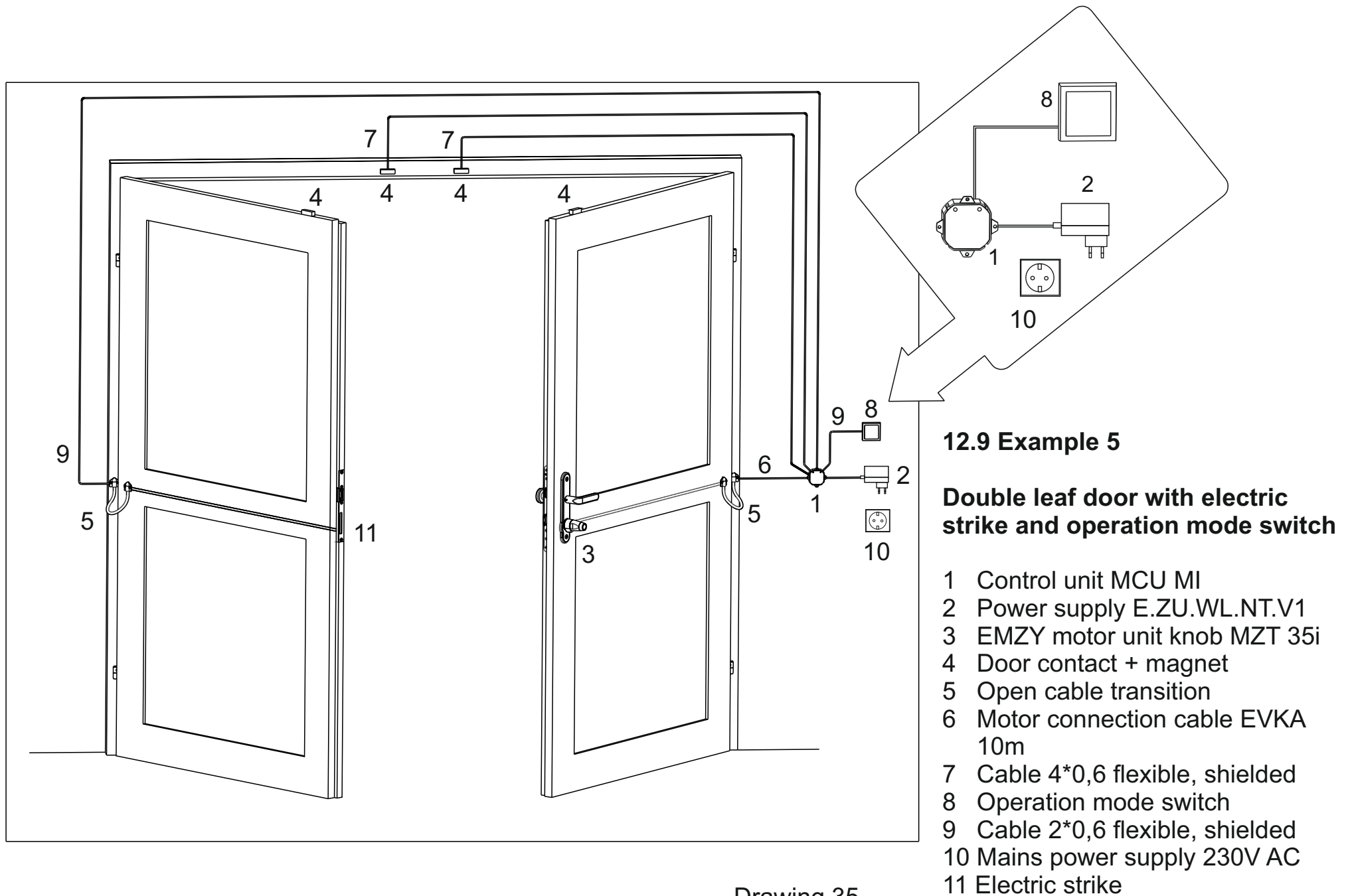
- 1 Control unit MCU MI
- 2 Power supply E.ZU.WL.NT.V1
- 3 EMZY motor knob unit MZT 35i
- 4 Door contact + magnet
- 5 Open cable transition
- 6 Motor connection cable EVKA 10m
- 7 Cable 4*0,6 flexible, shielded
- 8 Electric strike
- 9 Cable 2*0,6 flexible, shielded
- 10 Mains power supply 230V AC

Drawing 33

12.8 Connection diagram for example 4

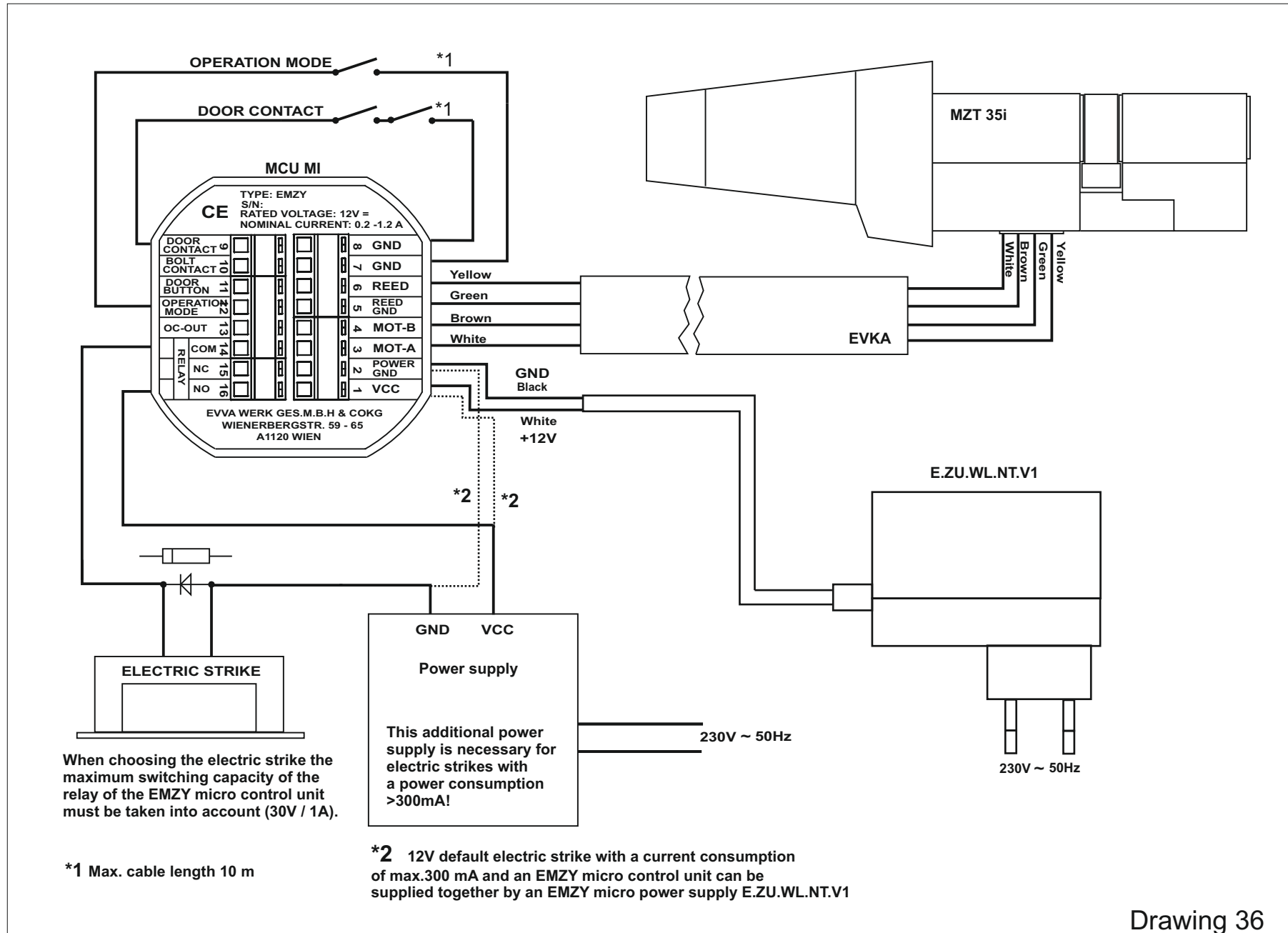


Drawing 34



Drawing 35

12.10 Connection diagram for example 5



Drawing 36

USER MANUAL Electronic motorized cylinder

13. Technical specifications

13.1 EMZY motor knob cylinder MKT 35i

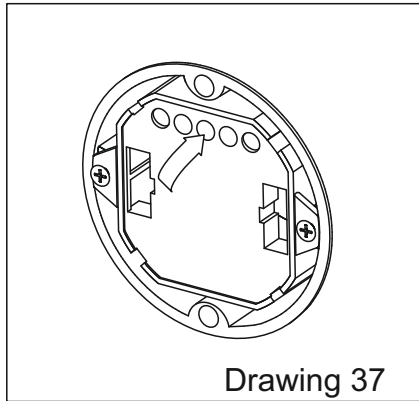
Minimum length of the cylinder on the knob side:	31mm
Minimum length of the cylinder outside:	according to the EVVA module system
Maximum length of the cylinder:	according to the EVVA module system
Number of spacers:	3 pieces spacer each 1,5mm
Cylinders in modular system:	DPI 5, DPI 6, DPX (on request), DUAL, 3KS, MCS modular
Full body cylinder:	MCS, GPI 5, GPI 6, DPX
Minimum back set:	35 mm with installation by default according to ÖNORM B3850, DIN 18101
Knob dimension:	maximum diameter 40 mm, length 70 mm
Finish:	nickel, chrome, satin brass, polished brass
Mortise locks:	Locks with recess for euro profile cylinders (most DIN and ÖNORM locks)
Assisted lock features:	Latch retraction and emergency opening (turning correction) and multi-locking locks
Usable escutcheons:	no known restrictions, also suitable for escutcheons with plug pulling protection
Type of locking cams:	Locking cams according to DIN / ÖNORM and cog wheel cams (10/21 cogs), double cam
Number of lock revolutions:	one or several revolution locks
Opening speed:	<1 second per revolution
Torque at knob:	~1Nm
Temperature range:	-20 C° to + 70 C°
Humidity:	20% to 80 % not condensing

13.2 EMZY micro control unit MCU MI

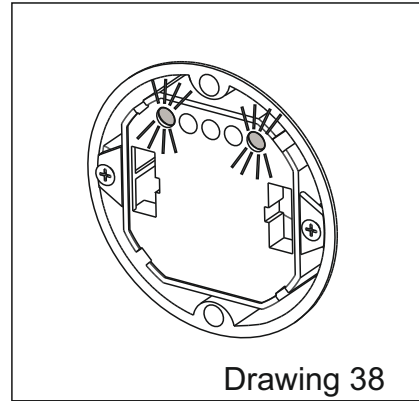
Supply voltage:	DC 12 V +/-5%, minimum 1A
Maximum input:	15 VA
Emergency power supply:	by possible constructor, according the specifications
Temperature range:	-20 C° to +70 C°
Humidity:	20% to 80% not condensating
Mounting dimensions:	suited for standard flush boxes UP58 ÖNORM E 6508 T1-4, DIN 49073-1
Body dimensions:	66 x 66 x 23 mm (H x W x D)
Maximum motor cable length:	10m, EVKA
Maximum switching capacity electric strike relay:	30V / 1A DC / AC
Max. Cable diameter for clamp:	1,5 mm ²
Weight:	40g

13.3 EMZY Power supply E.ZU.WL.NT.V1

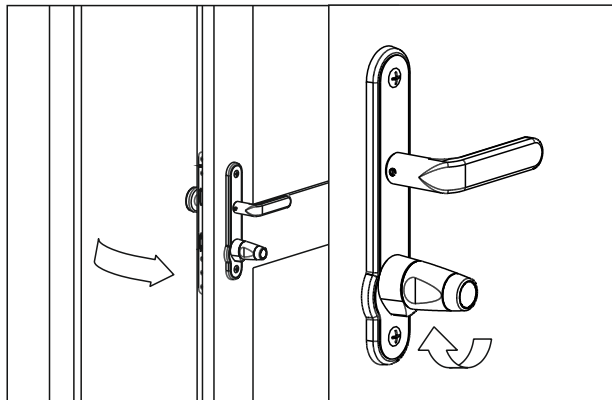
Supply voltage:	AC 100 -240 V 50Hz-60Hz, 35 VA
Output voltage:	DC 12 V / 2A
Box dimension:	83 x 74 x 34 mm (H x B x T)
Weight:	120g



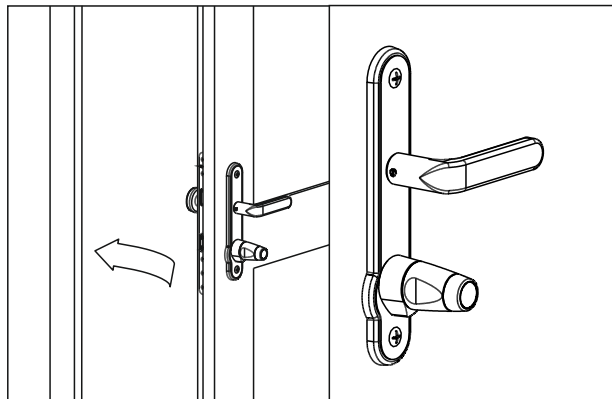
Drawing 37



Drawing 38



Drawing 39



Drawing 40

14. Interactive Learn

After the installation the control unit must be informed about the mounting situation. After its first start the control unit goes into a wait mode, which is left by activating “interactive learn”. All parameters are reset to the basic settings.

For a successful learning process the EMZY should be turn a minimum angular degree of 45° over is his Zero-Position (key withdrawal position) in both directions.

Attention: There are mortise locks which don't allow that.

14.1 Procedure of initialization

14.2 Start

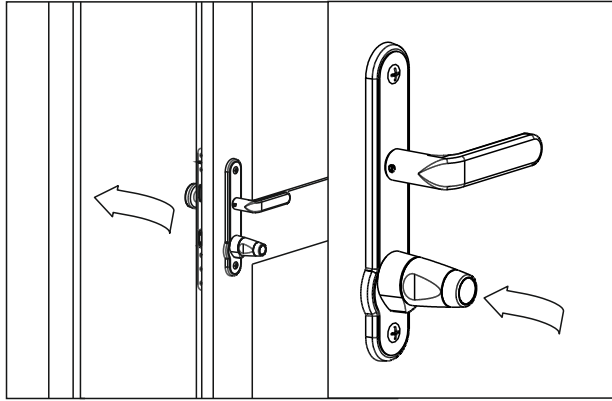
On the very first start-up the “interactive learn” is entered automatically. By pressing the learnbutton, it can be started manually any time. Red and green flashing LEDs in the control unit inform about the active “interactive learn”. (Drawing 38)

14.3 Opening of the door

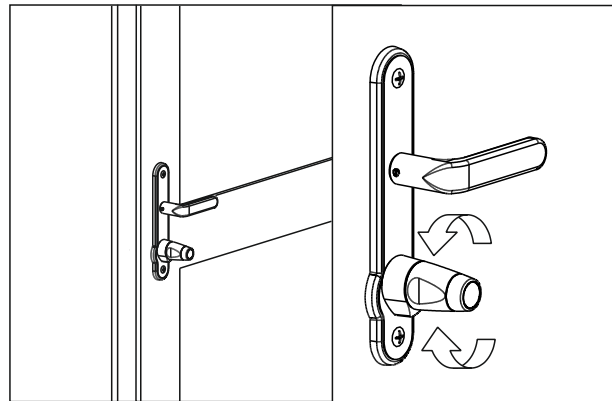
The knob is turned manually to the unlocked dead stop and then the door is opened. (Drawing 39)

14.4 Start-up of the learn mode (basic version)

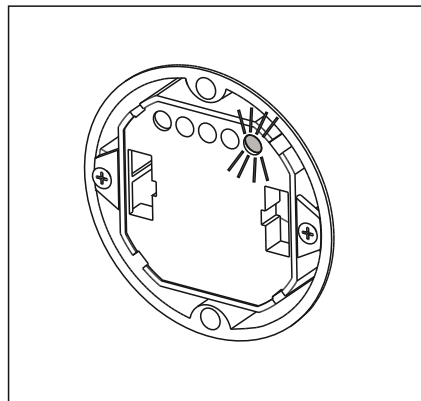
To activate the standard mode of the knob push button (same feature as the door push button) the door must be simply closed. (Drawing 40)



Drawing 41



Drawing 42



Drawing 43

14.5 Start of the learning procedure (intelligent knob button)

To activate the feature “intelligent knob button” the button must be pressed while closing the door. (Drawing 41)

A specific description of the feature “intelligent knob button” can be found in chapter 15.

14.6 Learning procedure

Two seconds after the closing of the door the motor knob unit turns into the closed dead stop and back in locked neutral position. (Picture 42)

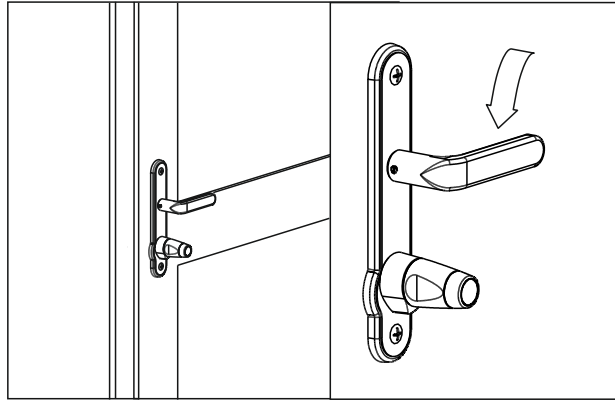
In this phase the following parameters are identified:

Knob push button	yes / no
Knob push button	normal / intelligent
Direction of rotation	left / right
Number of revolution	1 - 32
Bolt contact	yes / no

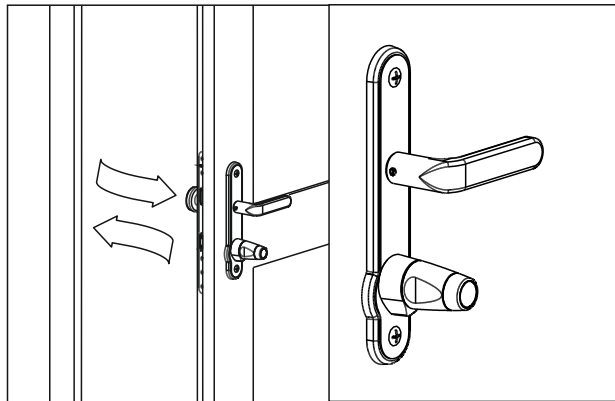
If an error happens during this learning procedure (broken lock, installation error, impossible number of revolutions ...) the micro control unit switches into error state. A red LED starts flashing. (Drawing 43)

After fixing this error (see chapter 16) the “interactive learn” mode can be activated again by pressing the learn key (drawing 37)

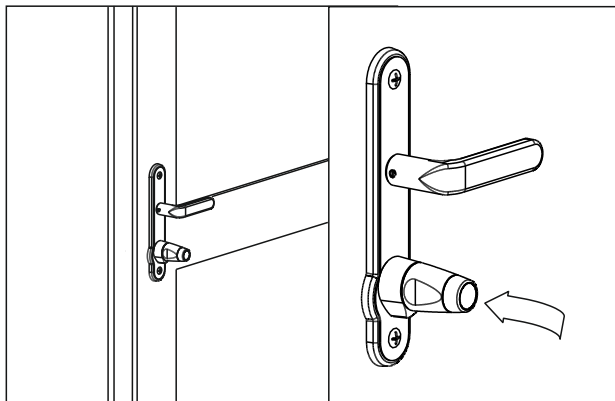
After a successful learning procedure a 15 seconds waiting time starts. During this period the emergency and latch retraction function can be initialized when necessary. When this waiting time is gone by without further action of the user, the micro control unit is ready. This is signaled by a red LED. (In chapter 10 you will find a list of the signal codes)



Drawing 44



Drawing 45



Drawing 46

14.7 Emergency mode

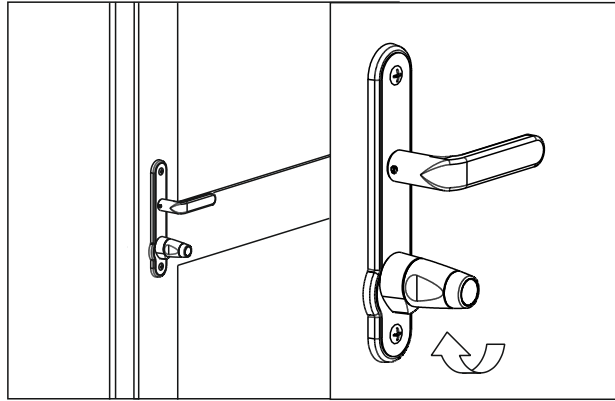
The handle of a emergency lock must be activated within 15 seconds and the door must be “emergency opened” (drawing 44/45).

After closing the door the motor knob unit locks the door and the parameter emergency function is saved. The 15 seconds waiting time is started again.

This point is skipped for locks without emergency function.

14.8 Latch retraction activation

To initialise the feature “latch retraction” the knob or door push button must be activated within the 15 seconds (drawing 46)



Drawing 47

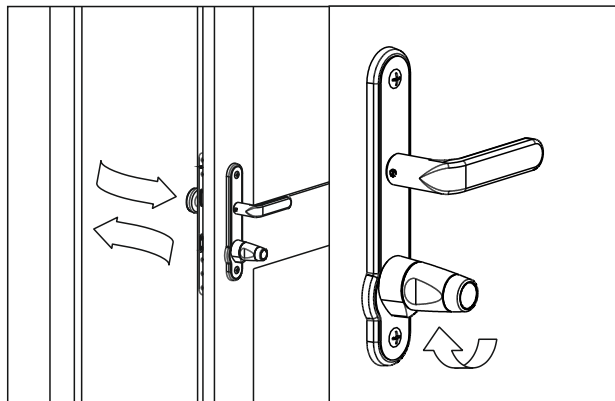
As soon as the motor knob unit turned in the open neutral position, turn manually the knob direction open to the dead stop and open, then close the door. (Drawing 47/48)

14.9 Standby mode

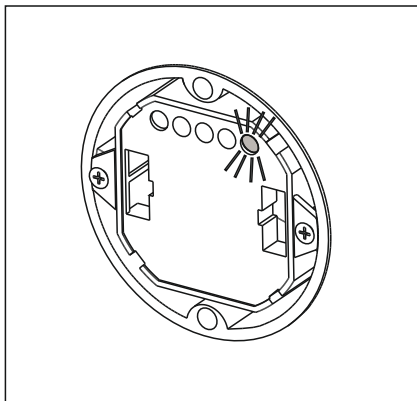
After the delay time the micro control unit is in the stand by mode. This state is confirmed by a permanently red LED. (Drawing 49)

A modification of the parameterising can be realized by pressing the learn button (drawing 37) activating the “interactive learn” mode again.

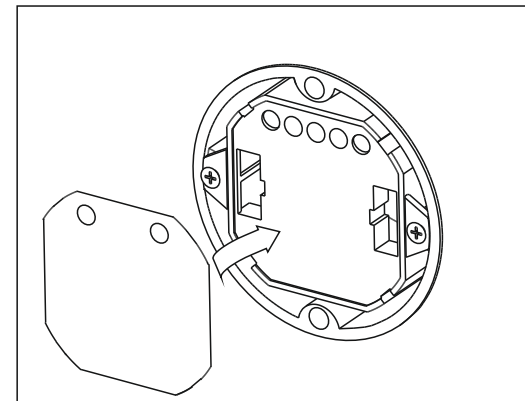
After a successful initialisation bond the enclosed sticker on the control unit. (Drawing 50)



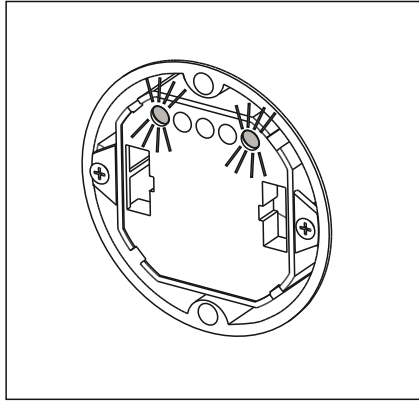
Drawing 48



Drawing 49



Drawing 50



Drawing 51

14.10 Flash codes of the LED

Red / Green alternately flashing	“Interactive Learn”
Red light	Secure locking
Green light	Open
Green flashing	Activation of the latch retraction
Red and Green light together	Activity (locking, unlocking)
Red flashing	Error

15. Intelligent knob push button

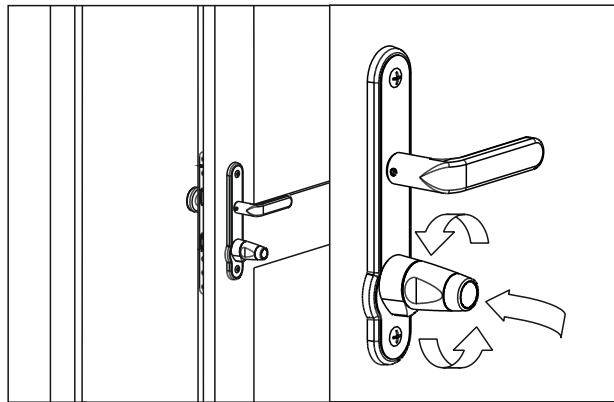
In “Interactive learn” mode the motor knob unit may be initialized in one of two possible modes:

1. Normal knob push button mode
The use of the knob push button makes the motor knob unit unlock the door.
2. Intelligent knob push button
The activation of the knob push button operates the motor knob unit.

Furthermore:

The activation of the knob push button with open door and for 2,5 seconds toggles day and night mode setting.

A short left right movement of the motor knob unit confirms the mode change.(see drawing 52)



Drawing 52

Day mode: The door stays open in spite of a closed door contact.

Night mode: The door remains locked all the time.

16. Parameterizing

The following parameters can be adjusted with EMZY micro configuration software. Additionally to this software a PDA, with a PALM operation system and an EMZY micro infrared module or the USB configuration set are needed. A detailed description is to be found in the Software manual.

16.1 Basic features

Within the times indicated in brackets (minimum value / default / maximum value) may be chosen freely within the limiting value. The value 255 is interpreted as infinite.

Door open time	(5 / <u>20</u> / 255) seconds
Open time	(3 / <u>10</u> <u>without or 3 with latch retraction</u> / 250) seconds
Locking delay time	(1 / <u>2</u> / 30) seconds
Electric strike-active relay time	(2 / <u>3</u> / 255) seconds
Time of latch retraction activation	(2 / <u>3</u> / 10) seconds
Delay of manipulation correction	(2 / <u>5</u> / 250) seconds
Number of fixing retries	(1 / <u>2</u> / 25) seconds

16.2 Free definable input

Possible functions:

- (0) Operation mode (basic setting, leave open for night mode)
- (1) Second release criteria
- (2) Locking request push button

16.3 Knob push button

Possible features:

(0) like the door push button (basic setting)

(1) like the door push button but first without latch retraction, only one more push in unlocked position activates it

(2) “Intelligent knob push button” with day / night mode

Pressing the knob push button with closed door has the same effect as door push button

Keeping held the knob push button with open door for at least 2,5 seconds initiates a toggle between day and night mode. To confirm this switch the motor knob unit makes a short left-right turn.

Day mode: The door stays unbolted despite a locked door contact.

Night mode: The door is always locked.

When this feature of the knob push button is chosen the operation mode input of the EMZY micro control unit is ignored. It may be parameterized to serve another feature (see chapter 16.2).

If the function “Opening delayed” is activated, it will be ignored for this function. The switch request of the “Intelligent knob push button” is executed in any case.

16.4 Relay output and OC-output

Possible features:

- (0) Electric strike (default setting for relay output)
- (1) Secure locking status (basic setting for OC-output)
- (2) Trespassing possible
- (3) Mirror door contact
- (4) Mirror bolt contact
- (5) Mirror operation mode input
- (6) Mirror door push button (impulse for 1 second at the beginning of opening process)
- (7) Sum of alarms (logical or)
- (8) Signal for buzzer control

16.5 Source of signal for the sum of alarms

As many alarm sources as desired can be chosen arbitrarily for the day and night mode. These source signals are linked by logical or (at least one of these possibilities activates the sum of alarms).

- (0) Open time exceeded (signal gets inactive after closing the door contact)
- (1) Emergency opening happened (signal gets inactive after the closing of the bolt contact)
- (2) Tamper (sensor line of the button is affected, the signal gets inactive when the normal state is reached)
- (3) Forced door (the signal gets inactive when a secure locking state is reached again)
- (4) Locking command failed (signal gets inactive after reaching a secure locking state or opening command)
- (5) Error of the locking logic (signal gets inactive after a successful half-learn cycle)

A special description of the used terms can be found in the chapter “parameterizing” in the software manual.

17. Troubleshooting

Error	Possible reason
Emzy micro control unit doesn't change to the "interactive learn" mode.	Check the connection with the power supply
The learning process doesn't work. Motor knob unit doesn't move during the learning process. During the learning process the motorized cylinder doesn't turn into the neutral position, but moves left and right.	Check the door contact (closed door > closed contact) Check the connection of the motor knob unit, take a special look at the sensor wire. (Green and yellow must be connected correctly) Check the door push button input, it must be open during the learning process and may not be activated.
With emergency locks the motor knob unit doesn't lock any more after an emergency opening, when the door is not opened. With emergency locks the motor knob unit locks the door with an opening and locking, then it locks until the dead stop and moves from there to the neutral position.	Check the bolt contact (locked > locked contact) Parameterize the function "emergency" during the learning process.
With emergency locks requiring two revolutions the motor knob unit only locks with one revolution.	Check the position of the bolt contact (after the locking it should operate after the last revolution only when locking)

USER MANUAL Electronic motorized cylinder

Error	Possible reasons
A connected electric strike is not activated.	<p>Check if the flyback diode is correctly inserted.</p> <p>Check the max. On time of the door opener according to the type lable (for a correct functioning during a permanent opening time the door opener must have an on time of 100%).</p>
After the reblocking of the door opener the control unit performs a reset.	<p>Check if the flyback diode is correctly inserted.</p> <p>Check the current consumption of the electric strike (max. 300mA). If the electric strike has a higher current consumption, a separate power supply must be used.</p> <p>Check the rated voltage of the electric strike. (see type plate 12 V DC) .</p>
After the activation of the electric strike the motor knob unit locks instantly, without the door being opened and the door opener retraction time being expired.	<p>Check the current consumption of the electric strike (max. 300mA). If the electric strike has a higher current consumption, a separate power supply must be used.</p> <p>Check the rated voltage of the electric stike (see type plate 12 V DC).</p> <p>The ground of the electric strike should not be connected to the GND clamp, but to the POWERGND clamp.</p>